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INTRODUCTION

While inflation accelerated in 1989, commodities prices fell by 8 percent, as tracked by the 23-component CRB Spot Price Index. Prices of commodity futures also declined, and the 21-market CRB Futures Price Index registered a 9 percent drop during the year. The slump in the Futures Index was the result of lower prices for the soft commodities, grains and oilseeds, and precious metals.

The Consumer Price Index rose by 4.8 percent in 1989, following an increase of 4.4 percent the previous year. The Producer Price Index also jumped by 4.8 percent, which was the largest gain since 1981 and compared with a 4 percent rise in 1988.

In the futures markets, trading volume continued to increase in 1989, swelling to a record 267 million contracts, up nearly 9 percent from the previous year. Growth was led by a near-doubling in trading in Eurodollar futures, and by volume gains in crude oil, Deutsche mark, and Japanese yen futures.

Treasury bond futures continued to be the most heavily traded contract, accounting for 26 percent of total U.S. volume, followed by Eurodollars with 15 percent, and crude oil with nearly 8 percent. Other futures contracts that were very actively traded were the S&P 500 Index, gold, soybeans, corn, the Deutsche mark, the yen, and sugar.

While volume in interest rate, currency, energy, and metals futures expanded in 1989, trading in stock index futures continued to decline. Volume in most agricultural markets was down, following a surge in 1988 because of the drought in North America. However, trading in the softs (coffee, sugar, and cocoa) and cotton rose in 1989.

The U.S. economy proved to be stronger than expected in 1989, with real GNP growth of 2.4 percent, versus 2.7 percent in 1988. However, a sharp slowdown was seen in the fourth quarter, when real growth was only 0.5 percent, annualized. Industrial production, which slackened in the second half, rose by 1.7 percent for the year as a whole. Construction and housing were weak spots, with construction expenditures up 1.2 percent for the year and housing starts down 7 percent. New home sales fell by 4 percent from the previous year. The auto sector languished, with sales of all cars and trucks off by 6 percent from the 1988 level. Total retail sales, on a real basis, increased by only 0.1 percent, following a rise of 4.2 percent in 1988. The jobs situation, however, was fairly healthy, as the unemployment rate remained at 5.3 percent during the year, which was considered full employment. Moreover, personal income rose by 8.8 percent in 1989.

The dollar strengthened against other major currencies during the first half of the year, only to give up most of those gains in the second half. The U.S. trade deficit stabilized, after having narrowed in 1988, and averaged about \$9 billion a month during 1989.

This year's edition includes three feature articles, beginning with "Financial Uncertainty and the TED Spread," by Kenneth Kauke. The article discusses the history of the TED spread from the inception of Eurodollar futures trading in 1981, and examines the spread as both a forecasting and investment tool in today's increasingly volatile markets. Mr. Kauke, who has over twenty years of experience in the cash bond markets, is Vice President, Investments, at Prudential-Bache Securities in New York and is part of a group servicing institutions in financial futures.

"Understanding and Analyzing the Soybean Complex," by Walter Spilka, looks at factors affecting U.S. and South American production trends and domestic and world-wide demand. It examines shifts in soyoil and soymeal usage and substitutes for these products, and explains how crushing margins are calculated. Examples of producer and exporter hedges in the soybean futures market and uses of options in hedging are provided. The author has been a Grain and Oilseeds Analyst at Smith, Barney, Harris, Upham and Co. in New York for nine years, and prior to that was a feed grain analyst at the U.S. Department of Agriculture in Washington. He has been a frequent contributor to CRB publications over the years.

"Analyzing the Commitments of Traders Reports" explains how information in these monthly Commodity Futures Trading Commission (CFTC) documents can be utilized. Deviations from seasonal norms in open interest by category of trader can be identified and used as a tool for price forecasting. Seasonal charts showing commitments of traders for several major commodity markets are included in the article. The author, Kenneth Shaleen, is president of the research firm CHARTWATCH in Chicago. He is also an independent floor trader and an instructor of courses in technical analysis.

We wish to express our appreciation for the assistance provided by government agencies, particularly the U.S. Department of Agriculture and the Bureau of Mines, and by the commodity exchanges and various trade organizations. We have attempted to list these organizations on page 4T.

The Editorial Board
March 1990

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THE COMMODITY PRICE TREND

Commodities prices, as reflected in the 21-market CRB Futures Index, fell by 9 percent in 1989, after having risen in the two previous years. Among the losers were the softs (-26 percent), grains (-21 percent), oilseeds (-18 percent), and precious metals (-7 percent). While the industrials were unchanged on the year, the energy component was up a substantial 32 percent. The livestock group gained slightly during 1989.

Industrials - During the spring, crude oil and gasoline rallied on disruptions caused by the Alaskan oil spill and reduced North Sea production. OPEC began the year with a production ceiling of 18.5 million bpd and ended it with one of 20.5 million, though output was above quota throughout the year. World-wide demand for crude oil was better than expected, with strong consumption in the Pacific Rim and many developing countries. In December, frigid weather in the U.S. and Europe sent spot heating oil to a record high of \$1.10/gal. The energy index rose to an almost 4-year high at year's end.

Copper futures, having started 1989 at an all-time high, slipped in the spring as more production came on stream. However, when several major mines—in Canada, New Guinea, and Mexico—were shut temporarily in the summer, prices rallied. After two of these mines reopened in the fall, prices fell, ending the year at \$1.06/lb.

Cotton futures had a major rally mid-year, boosted by rising U.S. mill use and exports, tightening world supplies, and Chinese buying. The market slumped at year-end with slower U.S. cotton mill use and economic worries, but was still up almost 20 percent from a year earlier.

Precious Metals - The precious metals index retreated during the first three quarters of the year. The group fell to a three-year low with rising gold and silver production, adequate platinum supplies, expected moderate U.S. inflation, and a firming dollar.

However, following the October 13 stock market plunge, the metals rallied sharply. With tension in Eastern Europe, Europeans bought physical gold and futures, and demand emerged in the Far and Middle East. The Japanese were seen as heavy buyers of platinum, while silver futures were boosted by increased speculative participation. Fourth-quarter weakness in the dollar was another constructive factor for metals prices. But at year's end, gold lost ground, while silver and platinum

plunged.

Livestock - The livestock group rose during the year and in November reached the best level since 1987. Lower than expected slaughters, good packer profit margins, and firm retail interest helped hog futures gain over 20 percent in value during the fall. Stronger pork exports to Japan and Mexico were also supportive. In pork bellies, food aid exports to Poland, sales to Yugoslavia, and optimism about an expanding Eastern European market catapulted prices to 2-year highs.

Cattle futures were spurred higher by a small cattle inventory, low kills, and improved retail interest late in the year.

Grains and Oilseeds - The grains and oilseeds fell in the first half of 1989, following drought-year 1988's high prices. Dryness in the western Corn Belt caused a June-July weather rally in corn and soybeans, but timely rains later caused prices to sink. After bottoming in early August, corn prices worked mostly sideways for the rest of the year, as heavy Soviet corn purchases tempered hedge pressure during the harvest. Soybean futures bottomed in October and then drifted sideways, influenced by sluggish export sales and prospects for a record South American crop.

Wheat futures, which began 1989 at an 8-year high, lost some ground during the year. Drought in the central Plains meant another small wheat crop in 1989. Because of low wheat inventories, USDA hesitated to offer subsidized wheat under the Export Enhancement Program; but late in the year the agency targeted China, the USSR, and other countries for substantial quantities.

Imported - The imported (softs) group slumped to the lowest level since 1985, as cocoa and coffee prices plunged. The International Cocoa Organization was unable to agree on ways to support prices, and a large 1988/89 West African cocoa crop added to already burdensome world supplies. Coffee prices plummeted after export quotas under the International Coffee Agreement were suspended in the summer. However, sugar prices worked higher during the year on a tightening world supply/demand balance and uncertainty over Brazil's exportable supplies.

Orange juice futures soared in late December on indications of severe frost damage to the Florida crop. The extent to which Brazilian juice shipments would make up for Florida's losses was uncertain.



Monthly CRB Futures Price Index (High, Low & Close 1967 = 100)

Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Range
1984	High	278.3	276.1	283.0	283.2	284.2	280.3	268.3	259.8	256.3	254.8	258.7	253.2	284.2
	Low	273.2	266.1	274.7	275.1	275.3	268.4	249.4	253.3	250.3	252.0	252.7	244.0	244.0
	Close	273.6	272.5	283.0	275.1	280.1	271.0	249.4	257.1	251.4	254.8	253.8	244.2	—
1985	High	247.9	248.1	245.2	247.1	239.7	233.8	228.0	221.7	224.5	225.6	227.7	231.1	248.1
	Low	241.7	236.6	238.2	239.3	230.9	226.6	219.3	217.7	217.2	221.9	223.8	227.6	217.2
	Close	247.1	238.2	244.4	239.3	232.3	226.6	220.7	219.7	222.9	225.6	227.7	229.2	—
1986	High	231.1	216.6	216.5	213.5	216.1	205.7	203.7	207.1	212.3	213.4	213.3	212.0	231.1
	Low	219.9	209.9	209.4	203.0	205.5	201.6	196.9	201.0	208.2	209.7	208.4	207.5	196.9
	Close	219.9	209.9	209.6	213.5	205.5	201.6	200.1	207.1	210.9	211.3	210.7	209.1	—
1987	High	213.9	213.7	210.1	221.7	235.6	234.6	227.8	226.8	227.3	232.7	237.1	234.7	237.1
	Low	208.3	204.2	205.7	209.4	222.6	223.1	220.7	222.4	223.5	222.7	221.1	227.5	204.2
	Close	212.6	205.4	208.7	221.7	224.9	225.9	225.9	223.0	223.8	223.4	234.6	232.5	—
1988	High	239.3	232.9	233.5	236.0	248.4	270.5	265.8	251.0	248.6	246.5	247.0	252.8	270.5
	Low	230.4	224.3	224.5	232.7	232.5	249.8	242.0	243.7	237.1	237.6	236.0	244.1	224.3
	Close	230.4	225.7	233.0	234.4	248.4	265.1	246.2	246.2	238.8	243.9	244.9	251.8	—
1989	High	251.6	243.3	248.1	244.6	242.8	235.4	237.0	225.5	226.8	228.1	231.7	229.9	251.6
	Low	241.1	236.6	241.7	237.7	229.4	227.9	221.2	221.5	222.9	223.0	226.0	225.6	221.2
	Close	242.4	243.2	242.1	238.0	229.4	234.4	221.2	225.5	226.8	225.7	228.8	229.9	—
1990	High	235.1	236.3											
	Low	228.8	229.9											
	Close	229.9	234.6											

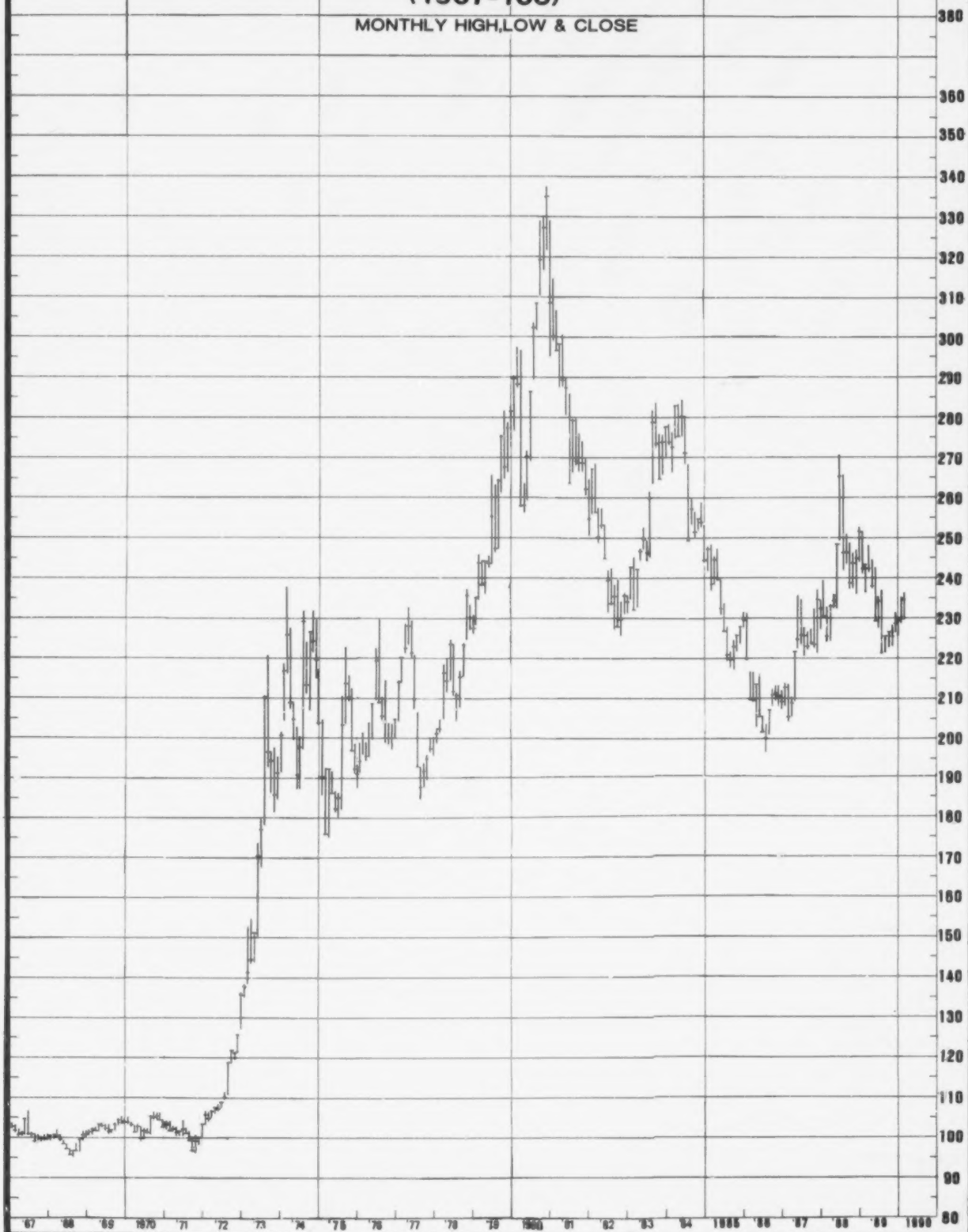
Source: Commodity Research Bureau

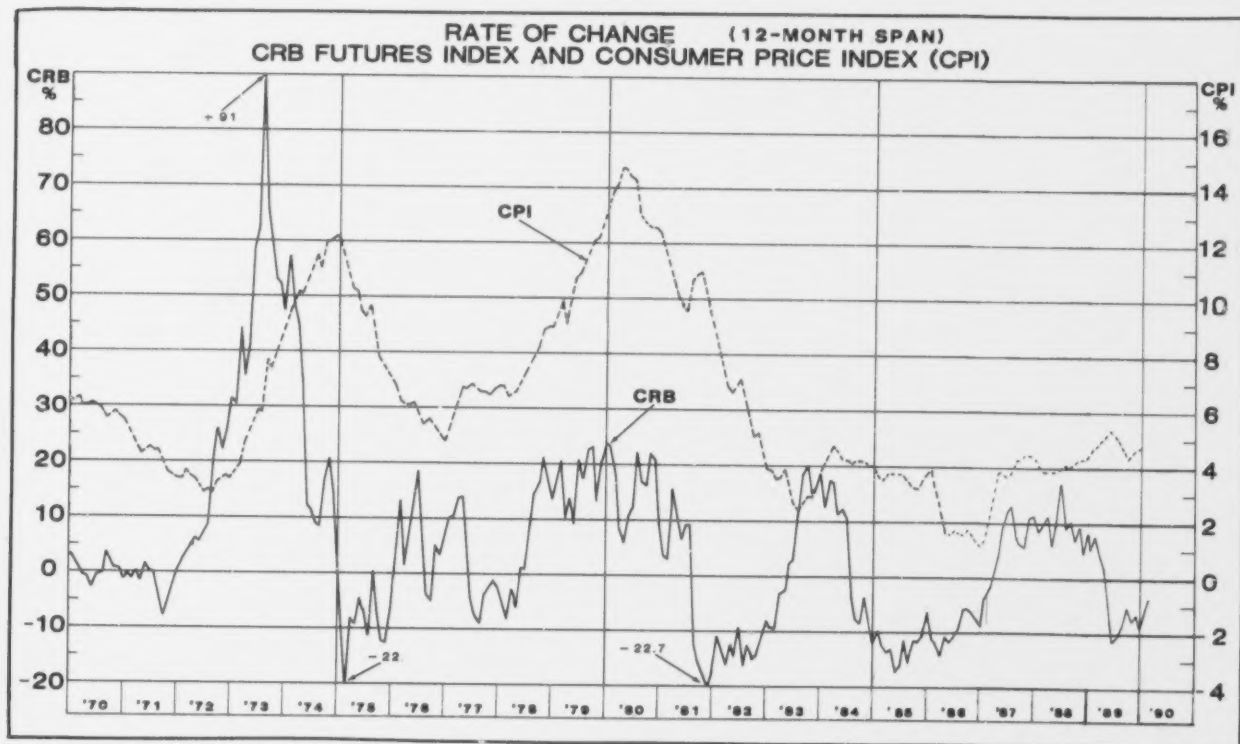
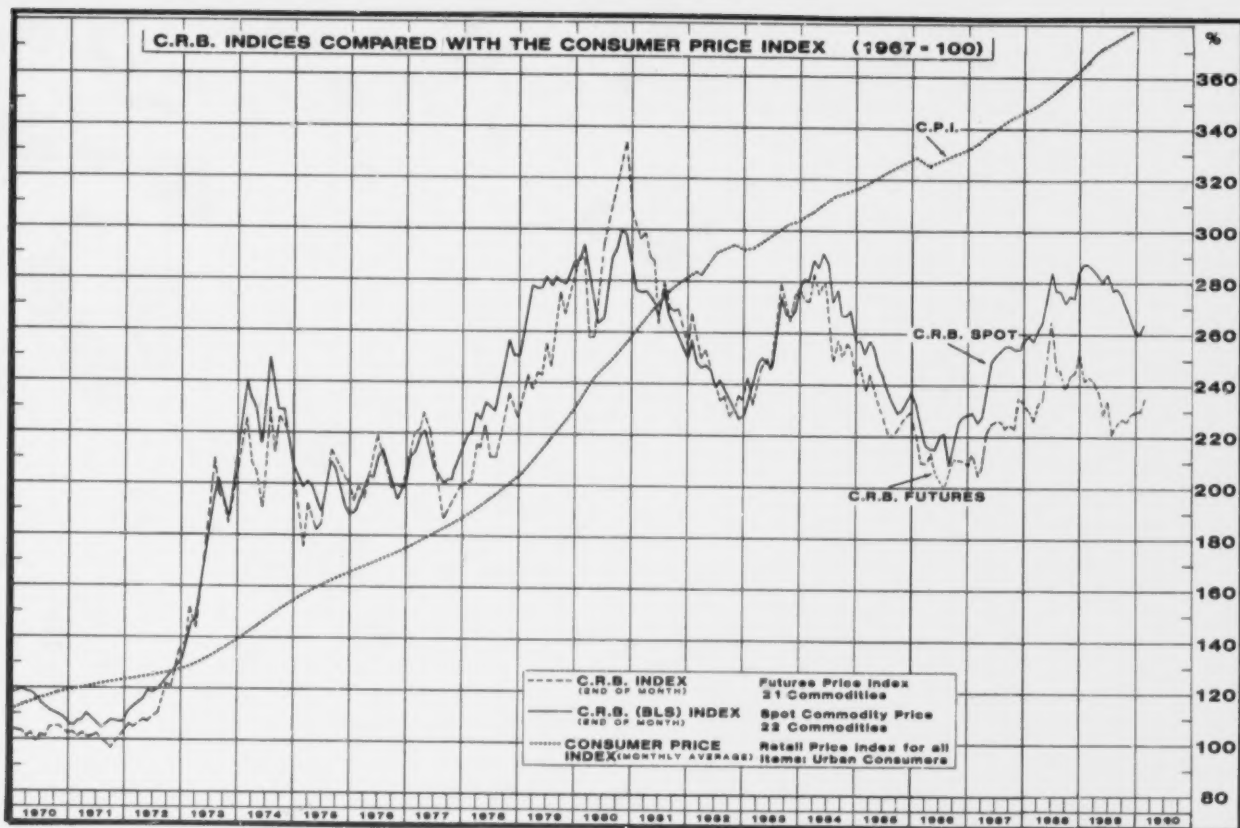
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COMMODITY RESEARCH BUREAU FUTURES PRICE INDEX

(1967=100)

MONTHLY HIGH, LOW & CLOSE



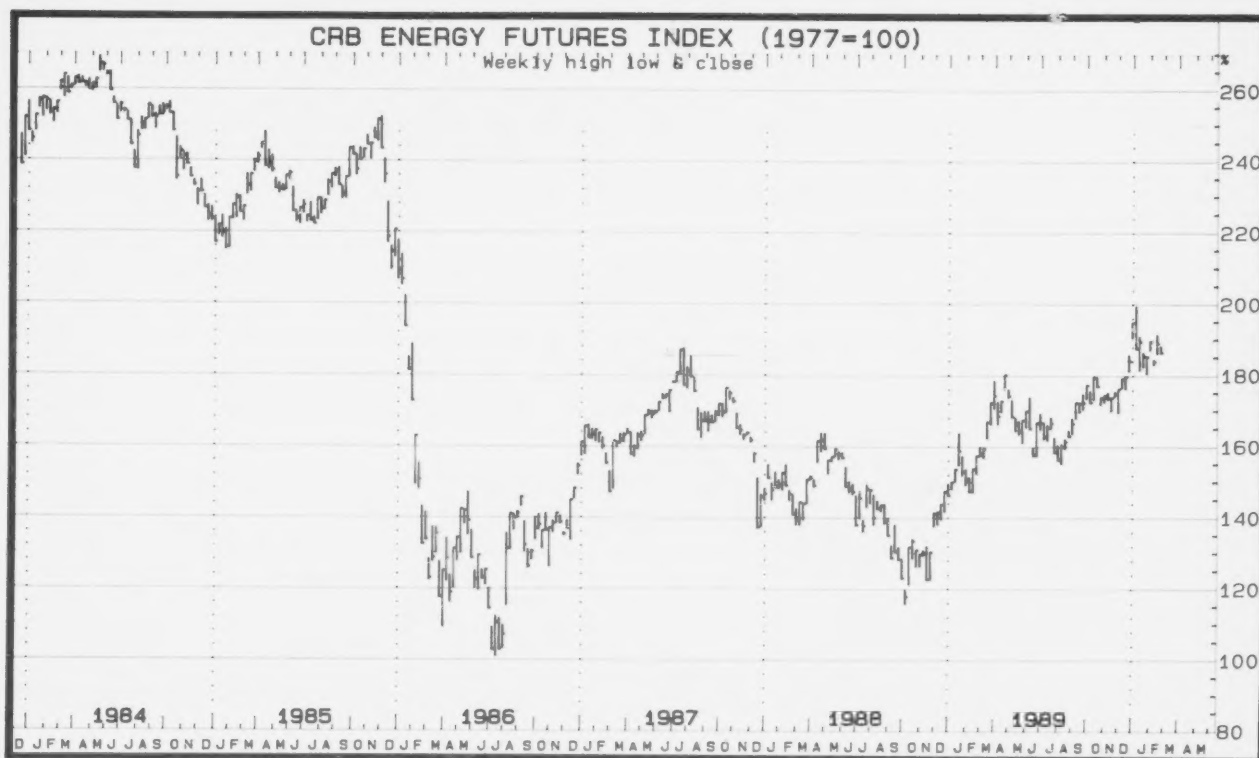












FINANCIAL UNCERTAINTY AND THE TED SPREAD

BY KENNETH B. KAUKÉ

Since the inception of the Eurodollar contract on December 9, 1981, going long the TED spread, or simultaneously buying T-bill futures and selling Eurodollar futures, has been a trading strategy designed to take advantage of adversity in the financial system. This technique has been described and recommended almost exclusively as a "quality" play; the position is expected to gain because of relative price changes generated by the development of serious credit problems in financial institutions or securities markets. A quick look at the long-term TED chart reveals several periods of extreme volatility linked to such stressful events in the past as the thrift disintermediation and industrial crises in 1981, the secondary government dealer collapses in 1982, and the Continental Illinois National Bank liability implosion in 1982.

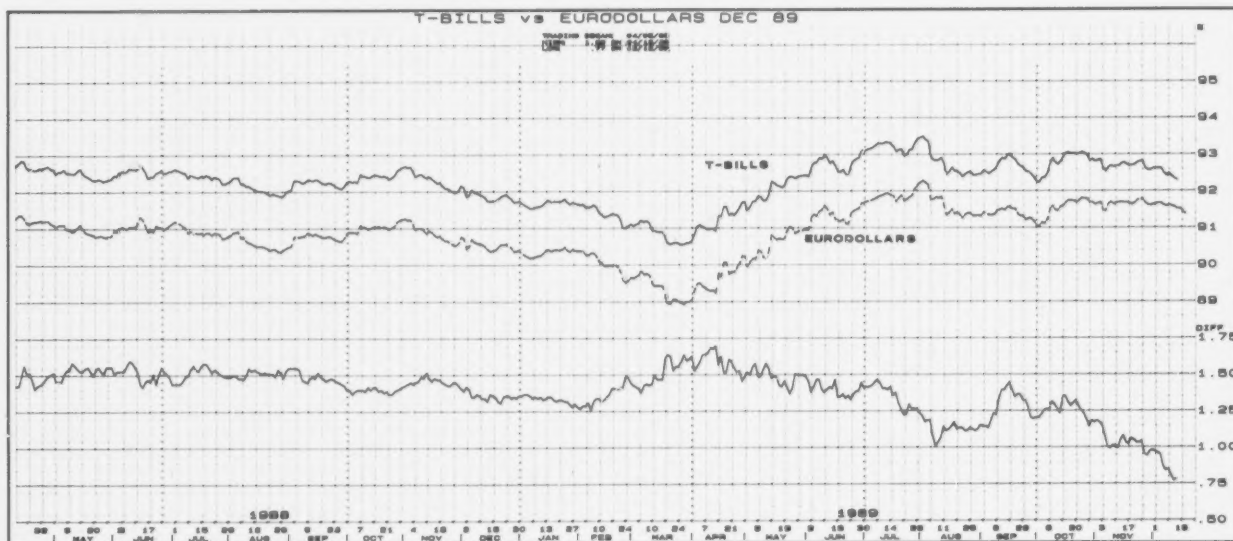
This review of the chart certainly tends to support the validity of the "quality" theme. However, analysis of interest rate spreads usually shows them to be more complicated and difficult than they seemed at first look, and the TED spread is no exception. As a case in point, on Monday, November 6, 1989, the TED spread narrowed dramatically, in spite of ostensibly increasing interest rates and a declining stock market, marked by weakness in financial shares against a background of gloomy banking news. On Wednesday, December 6, 1989, the TED spread traded at new lows, although regional bank shares were traded markedly lower after the chairman of the FDIC expressed concern about "souring real estate loans." In this article, we will seek to examine the "quality" theme as the driving force behind the TED spread and how

it is influenced by two other forces: the "quantity" or supply factor and the interest rate factor.

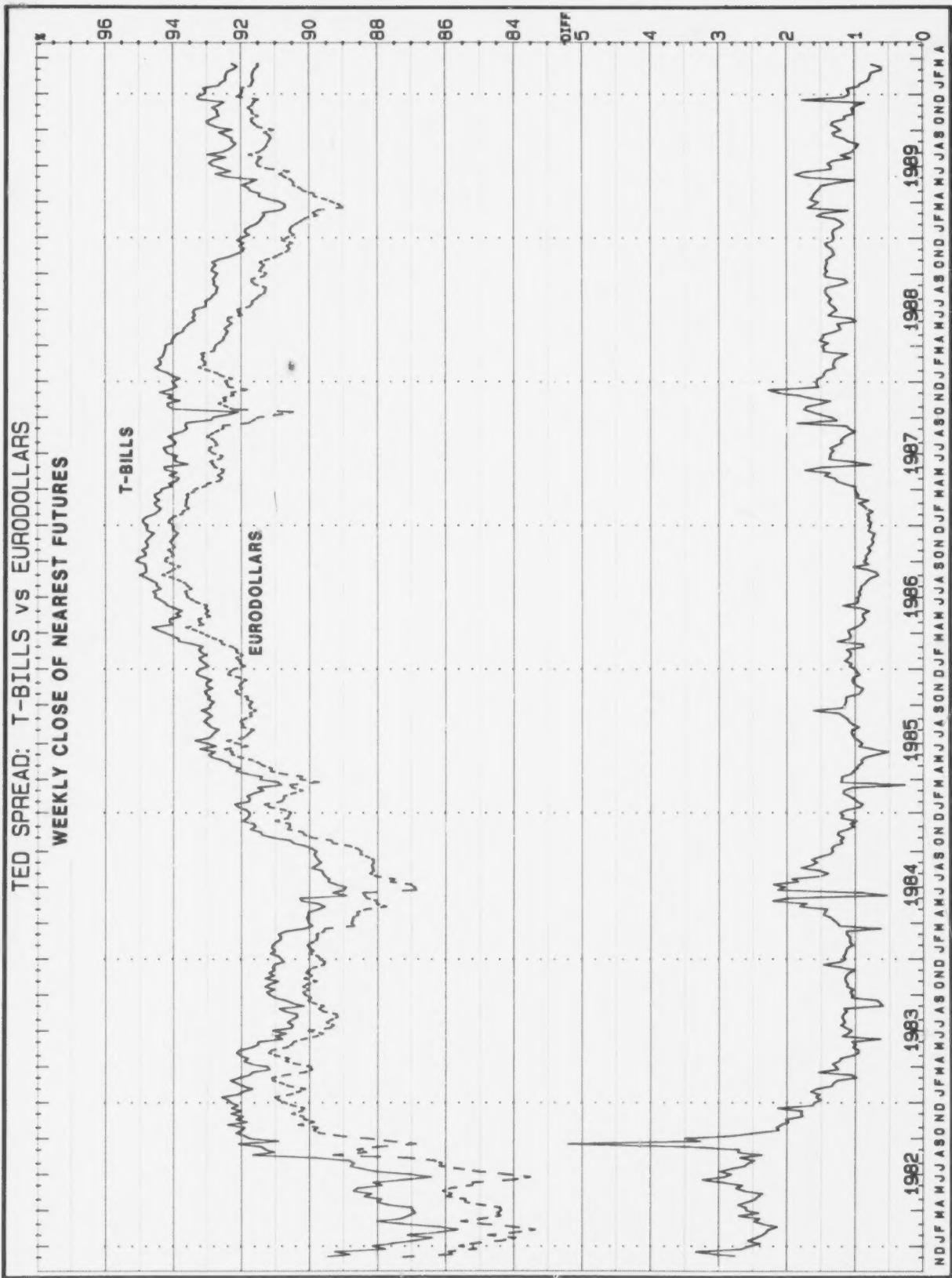
Defining the Components

With a view to getting the formalities behind us, let's define the TED spread. It is the numerical difference between the price of the three-month U.S. Treasury bill futures contract and the price of the three-month Eurodollar time deposit futures contract, usually in the same delivery month. Both are quoted and traded on the Chicago Mercantile Exchange's IMM division. Both futures contracts share the same delivery cycle months: March, June, September and December. And both have face amounts of \$1 million.

The T-bill contract can be settled at expiration by delivering \$1 million par value of U.S. Treasury bills with three months to maturity. (This is now effected by "book entry" or computer accounting, rather than by manually handling physical certificates. The T-bill discount rate measures the borrowing costs of the world market's most highly regarded creditor, the U.S. government. The Eurodollar contract, unique at inception and still unusual relative to most commodity futures, is characterized by "cash" settlement. A cash adjustment, debit or credit, replaces the delivery option characteristic of most futures contracts. The monetary adjustment is based on the settlement or final price at expiration, which is determined by the three-month LIBOR rate (London Interbank Offered Rate for U.S. dollars) for funds to be deposited on the third Wednesday of the contract month. This rate represents



TED SPREAD: T-BILLS vs EURODOLLARS
WEEKLY CLOSE OF NEAREST FUTURES



the level at which large international banks are borrowing dollars in London for three months' term. Note that these contracts are quoted in terms of "price" in the futures markets, although money market instruments are conventionally traded in the cash markets in terms of discount or yield.

In designing these contracts, the Exchange sought to make them similar to other futures instruments and concluded with the idea of using a price index. For the T-bill contract, the price is par or 100 percent less the discount. And in the case of the Eurodollar futures, it is par less the ("add on") yield.

Since the Treasury bill is the ultimate in credit worthiness and liquidity in the money market, the bill almost by definition has to trade at a premium price to any other money market vehicle such as the Eurodeposit. Issuers other than the U.S. Treasury—such as the large commercial banks, as big as they may be—simply don't enjoy the same credit ranking. To buy or go long the TED spread is to buy the T-bills and sell short the Eurodollars in a given cycle, a strategy undertaken when one anticipates uncertainties or difficulties in the world financial markets. The underlying logic is that investment flows will move to T-bills during troubled

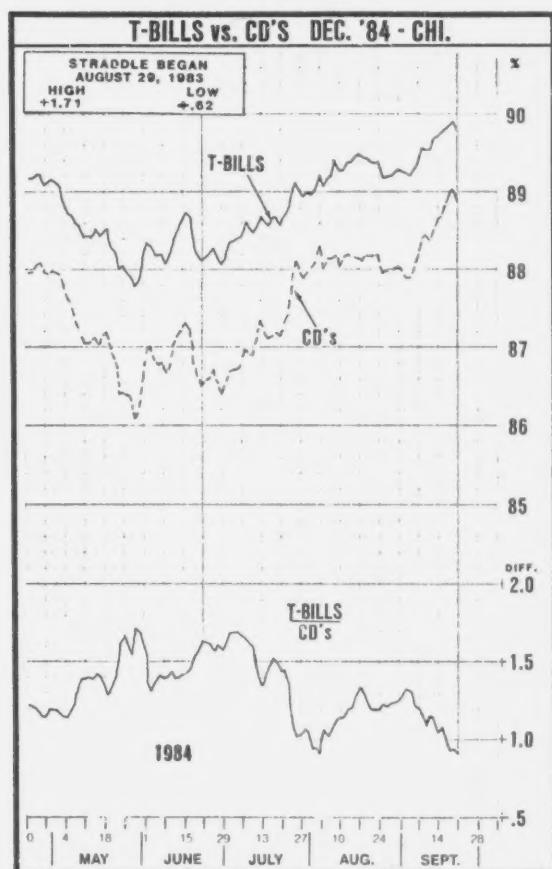
periods because of their unquestioned credit standing and limited risk, rather than to other money market or capital market instruments. At the same time, large international banks are forced to pay higher levels of interest to acquire or keep funds.

A rush to buy bills, given their finite supply, can result in a dramatic and sudden widening of the spread, when an adverse surprise occurs in the financial arena. Because the Eurodollar contract has a cash settlement based on London interbank deposit levels, it is relatively well insulated from tightness of supply. One usually reads or hears about the TED spread when the market is anticipating increasing rate pressures and more uncertainty. However, the spread can be and is traded for "better or worse," for improving or deteriorating financial circumstances. Please refer again to the long-term TED spread chart, 1981-1989, and observe the sharp spikes. Rapid retreats follow explosive surges (as the Federal Reserve responds to the crisis by providing liquidity), and volatility sometimes disappears for long periods as general interest rate levels decline. The accompanying charts displaying the TED's performance during the October 1987 and October 1989 stock market declines provide additional and more detailed evidence of this phenomenon.

Cash and Futures Spreads

Traders should keep in mind that the TED spread exists in the "cash" money market, as well as in the futures market. Futures traders are advised to be aware of what is happening in the cash markets. As a day-to-day matter the cash and futures markets may not move in "synch" because of basis fluctuations, until expiration approaches. As expiration of the futures approaches, there is likely to be a distinct convergence phenomenon, in which the futures spread and cash spread tend to meet. The trader should note the levels of the bills and Eurodeposits for the dates that are deliverable against the TED spread cycle he is following. In the November 6 market, the cash-market TED was significantly narrower than the futures spread. The reason for this was that bill futures traded at a premium to cash bills, because of the existence of negative carry. Bill yields did not cover the "repo" rate or financing cost. That made it attractive to substitute bill futures for a cash position. Suspicions of possible Fed easing, and fears of renewed heavy bill financing by the Treasury forced the TED spread to narrow towards the cash level, in spite of gloomy reports of bank losses in the financial papers. In December, as well, anticipation of Fed easing prevented the spread from widening.

In analyzing the TED spread as a "quality" play, we should note that in the history of financial futures, a predecessor spread to the TED existed: the T-bill/CD spread. The (domestic) certificate of deposit futures contract signified a distinct quality of credit, because the contract was defined in terms of the obligations of a distinct list of ten specific banks, which happened to be the largest in the



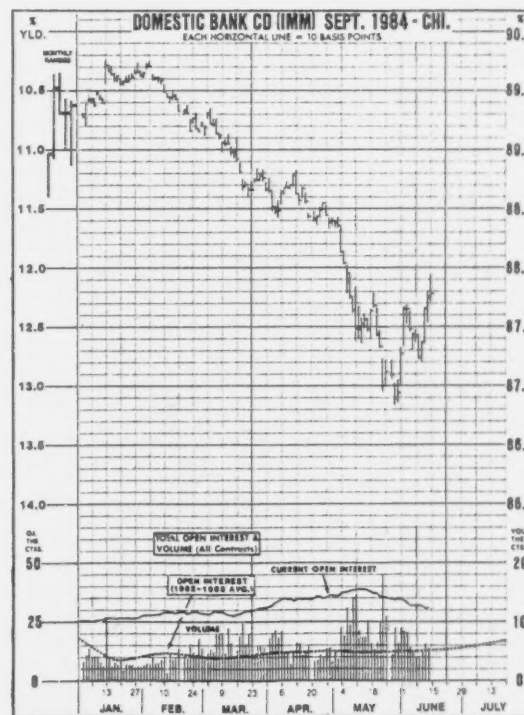
nation. That list originally included the Continental Illinois National Bank of Chicago. The certificates of deposit issued by any of the ten specified banks were deliverable in settlement of the futures contract. As a result, the futures contract tended to trade in terms of the least desirable, lowest-credit-quality CD (highest yielding) on the list.

With the troubled outlook for the CINB in 1984, following the implication of the Chicago bank in the Penn Square collapse, the CD contract led the Eurodollar contract in widening from the T-bill futures. Note the long-term chart of the TED spread and the widening to over 200 basis points at the peak of the crisis in May. This event led to the demise of the CD contract as a viable futures instrument with actual delivery, and led to the rapid development of the Eurodollar contract. As the charts of the September 1984 Eurodollar and CD contracts show, the two tracked each other tightly, but the delivery risk drove traders to abandon CDs for Euros. (That also marked the demise of the "money market" spread, defined as the CD contract versus the Eurodollar contract, a finely tuned quality play.)

We commented previously that sometimes the TED spread is described almost exclusively as a quality play. But as suggested by its action on November 6, it also behaves as an interest-rate play on the one hand, and as a quantity or supply play on the other. When interest rates decline, the TED spread narrows, and when rates rise, it widens. Financial rate pressures, credit uncertainties, and funding difficulties usually have been associated with sharply higher or suddenly increasing interest rates, as one can see on the long-term TED chart. Note the high level of bill and Euro rates in 1981 and 1982 that underlay the extreme volatility in the TED spread, as the economy came out of a period of rapid inflation and the oil embargo disruptions of the late 1970s. Compare that with the subdued volatility of the TED spread in years such as 1983 and 1986, when the Federal Reserve had embarked on monetary easing.

Liquidity and the Ted Spread

Sharp increases in marginal interest rates threaten financial entities, when they are already operating over traditional rate pain thresholds. Moreover, there are inherent mathematical factors in the definitions of the contracts that affect spread values. Recall that the Treasury bill contract is defined in terms of discount from par, a number which is less than its corporate yield equivalent, and the Eurodollar futures contract is in terms of add-on yield, which is almost the corporate yield equivalent. The mathematics implicit in the definitions of the instruments require the spread to be positive. Moreover, historical cash market experience is that the spreads respond to the absolute level of rates, because Eurodollar rates will tend to provide a percentage yield premium over bill rates. Therefore, the spread widens on increasing general rate levels and narrows on declining levels. The TED spread may also reflect the supply of paper,



i.e. demand for funds, other things not always being equal. Futures traders are advised to be cautious, since not all the logic is on their side. The outcome of a situation in which financial institutions are having difficulties could conceivably result in liquidation of portfolio holdings of cash Treasury bonds or Treasury bills, exerting pressure on the cash and futures bill markets and thereby short-circuiting the TED spread strategy. In one situation where a commercial bank required direct aid from the Fed, the central bank drained reserves in its daily open market intervention to offset the direct and unrevealed loans. The markets, seeing only the drain, were startled and confused and reacted perversely to the logic of the TED.

Again, if a troubled institution or institutions can obtain funding outside of the visible, international market, the impact on the Eurodollar market might be insignificant. These situations represent the supply or "quantity" theme asserting its influence.

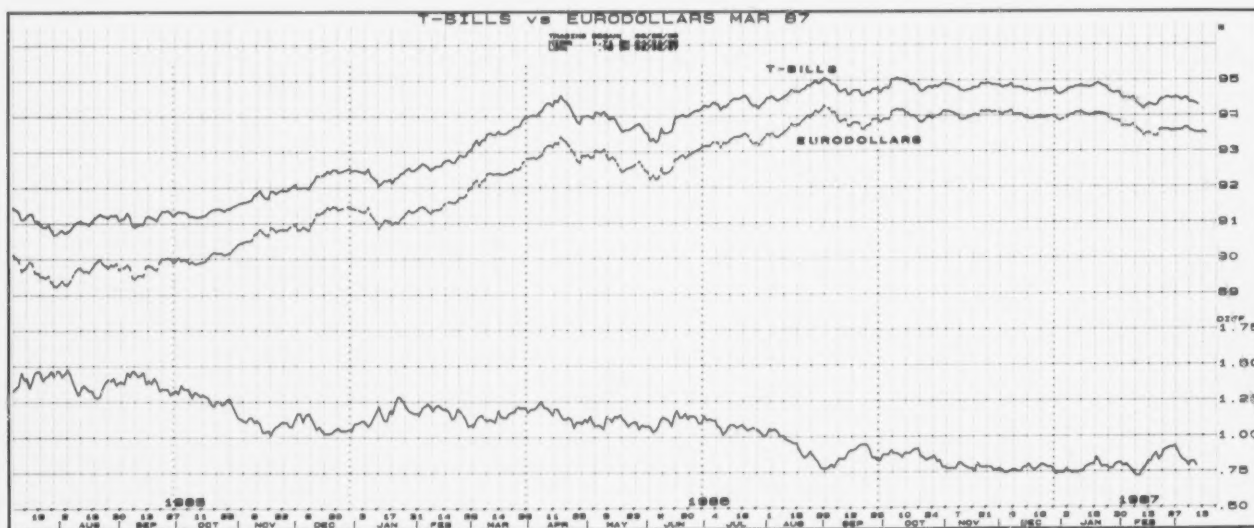
We can also view the TED spread as a predictor of supply (of paper, i.e. demand for funds). The Eurodollar futures contract, as the premier money market futures vehicle in terms of size and liquidity, reflects bank liability issuance directly and quickly. Therefore expansion of banks' liabilities to meet credit demands or anticipated rate changes, whether domestic or international, will impact the Eurodollar contract and possibly the spread. Developments in other money markets may also influence levels of Eurodollar futures and the TED spread. The Eurodollar contract is the instrument of choice in hedging commercial paper positions, bankers acceptances, and other money market instruments, and is widely used as a hedge instrument in interest-rate swaps. T-bill supply may be influenced by U.S. Treasury debt ceiling problems, central bank activity--buying or selling--resulting from foreign exchange intervention, technical shortages having to do with seasonal pressures in the collateral markets, open market activity, or expected developments in those areas.

Factors Affecting Basis Risk

Conceptual difficulties exist with the Eurodollar contract, in connection with the quality-driven TED spread. A specific bank credit problem may not necessarily impact quoted Eurodollar rates directly. The Eurodollar contract on the Chicago Mercantile Exchange in recent periods has had a huge open interest and high volume, suggesting great liquidity. However, wide ranges and big moves have been seen over short periods of time. As previously noted, the contract is used as a hedge vehicle in many financial applications, even when the basis risk is large or unknown. Some applications, such as those relating to interest-rate swaps, are not well understood. But there are reasons to fear self-reinforcing trends, like those in connection with equity portfolio-insurance programs.

Traders should be aware that the volume and open interest totals for the Eurodollar contract dwarf those of the Treasury bill futures, suggesting possible liquidity imbalances. During 1989, approximately 27 Eurodollar contracts traded for each T-bill contract. The flight to quality that takes place during a financial panic makes it very risky to hedge a financial transaction that involves a credit risk with T-bill futures, particularly as a short hedge. During a financial crisis, funds are pulled out of virtually every other financial instrument and poured into T-bills. The resulting boost in demand for T-bills can make the basis risk of such a position match or exceed the interest rate risk.

Options exist on the Eurodollar contract and generally have enjoyed active trading. This feature adds new opportunities and additional risk variables to our subject. From the opportunity perspective, a trader may wish to substitute a purchase of a Eurodollar futures put in lieu of selling the ED futures short, depending on his risk analysis. T-bill futures options exist on paper but, as a practical matter, don't trade.





Since the Continental Illinois Bank crisis in 1984, Federal Reserve Board authorities have monitored the TED spread, at least as it exists in the cash market, and have commented on it in the Federal Open Market Committee minutes as an indicator of market confidence in the financial system. One wonders whether this fact affects the spread's behavior in some variation of Goodhart's Law, which is that any measure of money will start behaving differently the moment it becomes an official target of monetary policy.

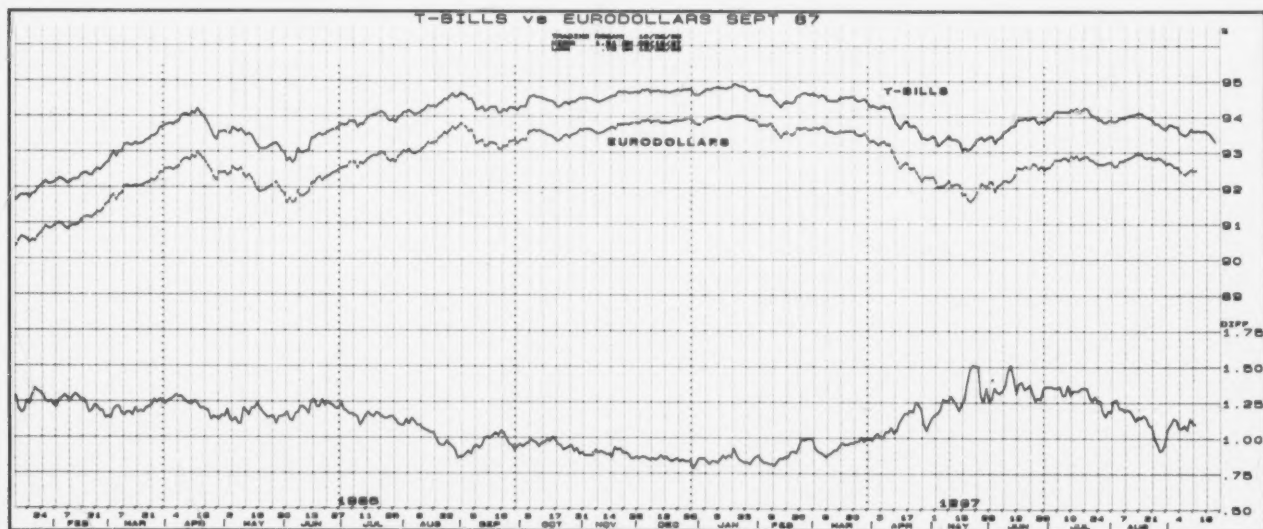
In the chart covering the existence of the spread, it is interesting that its volatility seems to be diminishing. Early in its history, the spread exceeded 500 basis points in mid-1982. The spread rose to over 200 basis points in December 1982. But after the Continental Illinois crisis, it didn't achieve that width again until the stock market crash of 1987. From early 1989 to the time of this writing, we haven't reached the 200-level again, in spite of several thrift and commercial bank scandals

and continued Latin American debt headlines. Nonetheless, there is ample support for the case that the TED spread responds to interest rates and fundamental forces. It should be realized also that the spread has a characteristic of correcting quite smartly from its extremes.

The Historical Context

While not every blip on the accompanying spread charts reflects a financial crisis, the major economic events of the 1980s left their marks on the spread. The following history is intended to tie those events to the market reactions they generated.

Anthony Solomon, then president of the Federal Reserve Bank of New York, described 1981 as follows: "Economic developments during 1981 underscored how difficult, prolonged and, at times, painful the period of adjustment would be to the legacy of high inflation and oil price shocks that had been plaguing the world economy in recent years." (p.18,



Federal Reserve Bank of New York, *Annual Report, 1981*) That year was marked by severe thrift industry problems. It was a year where the Fed raised the discount rate to 14 percent in October, but in November lowered the rate to 13 percent. That was the beginning of an easing program that saw the discount rate bottom at 8.5 percent in December 1982. The summer of 1981 brought bank prime rates as high as 20.5 percent and the beginning of a move to 11 percent at the end of 1982.

1982: a Year of Living Dangerously

Rates were not falling rapidly enough in 1982 to prevent some severe financial shocks. Drysdale Securities, a "non-recognized" government dealer, failed in the spring after abusing "repo" market conventions. This was revealed on May 17, and was followed by the collapse of Lombard Wall Corporation, another secondary dealer, which raised legal questions about the treatment of "repo" transactions, and led to a squeeze in the area of government security financing. On July 5, 1982, the Penn Square Bank, a mismanaged "oil patch" institution in Oklahoma, was declared insolvent, severely impairing the commercial bank certificate of deposit market and triggering the Continental Illinois debacle. As oil prices fell, the Mexican debt crisis surfaced over the summer, threatening almost all of the major domestic banks.

During the year, there were some large industrial corporate bankruptcies, such as that of Massey-Ferguson, and, to that time, a record number of thrift consolidations. Although the Fed had undertaken a policy of easing in February, it wasn't until August that Wall Street sentiment turned constructive, at the time of a famous Henry Kaufmann forecast presentation. According to the New York Fed, "The reduced supply of outstanding CDs, the increased supply of Treasury bills, and the diminution of credit-quality concerns led to a narrowing of the

CD-Treasury bill rate spread to about 55 basis points in December." (p.14, *Annual Report, 1982*). Note that this reference to supply factors is a rare occurrence.

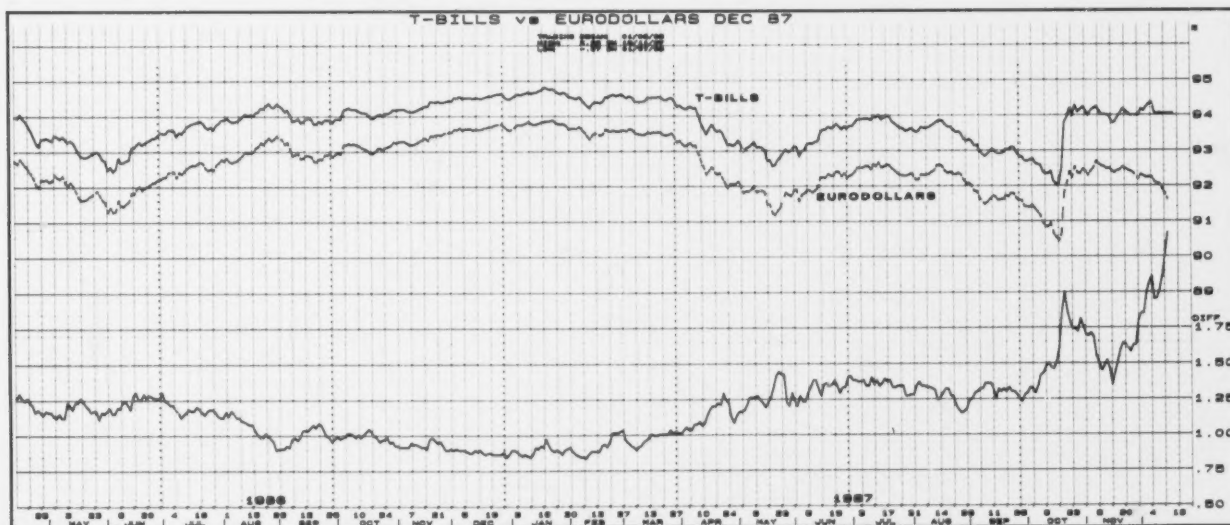
In 1983, the economy improved with a background of basically steady rates and no new, notable financial disasters. However, by the spring of 1984, strengthening economic activity was bringing rapid monetary growth, which led to a restrictive central bank policy. This set the scene for the Continental Illinois National Bank problem. This institution, one of the ten largest in the nation at the time, was especially dependent on the large lenders in the national CD and London Eurodollar CD markets. The bank's reporting of huge losses in oil lending jeopardized its credit standing to the extent that it appeared to be on the verge of collapse.

However, the Fed announced that it could not allow a major bank to fail, made provisions for specific credit injections to the bank, and undertook to dramatically ease. The assertion of the central bank responsibility and intention to stand behind major commercial banks may have permanently taken some long-term volatility out of the spread. The discount rate, raised to 9 percent in April 1984, graduated down to 5.5 percent in August 1986. Bank prime went from 13 percent in 1984 to 7.5 percent in August 1986.

The third year of economic recovery was 1985, the year of the dollar "overvaluation." Then came 1986, a disaster-free year when interest rate levels were influenced lower by declining energy prices.

1987: the Stock Market Bubble Bursts

In 1987, efforts to clear up the Latin American debt problem continued for the second year. Brazil ceased paying interest on foreign commercial debt in February. Stresses began to appear in the investment banking area, with guilty pleas and new indictments in the equity arbitrage community. In



April, some banks placed Brazilian debt on a "non-accrual" basis, and Texaco filed for bankruptcy. In May, Merrill Lynch admitted to huge trading losses. Paul Volcker stepped down as Fed chairman in June and was replaced by Alan Greenspan. The Dow Jones Industrial Average made what was to be its high for the year in August. In September, the Fed raised the discount rate. In October, Treasury Secretary James Baker jawboned the dollar down, and Congress proposed punitive takeover legislation, threatening holders of positions in "takeover" stocks. These last three actions lead to the October stock market crash. Fears of a consumer-led recession stemming from the severe decline in equity prices led the Fed to ease monetary policy considerably once again.

The economy was stronger than expected in 1988, with an improving dollar and no disasters.

In 1989, there was no one big financial shock, but several smaller ones made the year interesting. February saw two prime rate increases moving that indicator from 10 1/2 to 11 1/2 percent, and a Federal Reserve discount rate increase to 7 percent, resulting in several blips in the TED. Also affecting the spread was the announcement of the Brady plan (to deal with the Latin debt situation) in the spring, which was interpreted as having an adverse effect on commercial banks. Softening rates in early summer--bank primes came down a half point each time at the beginning of June and the end of July--coincided with a distinct narrowing of the spread. Although the difficulties of thrift, commercial, and investment banking firms have been in the headlines continuously, there does not seem to have been any one "blockbuster" event. There were a number of "junk bond" defaults, and towards year-end, public concern about major retail store bankruptcies surfaced. The latter developments caused an increase in the TED spread in mid-December. Two years after the 1987 stock market crash, a mini-disaster in the stock market in October brought news stories quoting Fed sources, who promised new provisions of liquidity.

A Creature of the Fed

The lesson to be drawn from the charts and the history of the spread is that the TED's market action reflects the "stop-go" pattern of Federal Reserve monetary policy. When rates are unusually high and moving upwards, or suddenly working higher as a result of a Federal Reserve move to monetary restraint, pressures develop and create cracks in the financial structure. The TED spread widens, perhaps violently. When the developing crisis threatens to spread and undermine consumer confidence, the Fed, as crisis manager, steps in to reliquify the markets. The TED subsequently collapses, and the cycle begins again. The interest rate theme seems to be the most important element to consider.

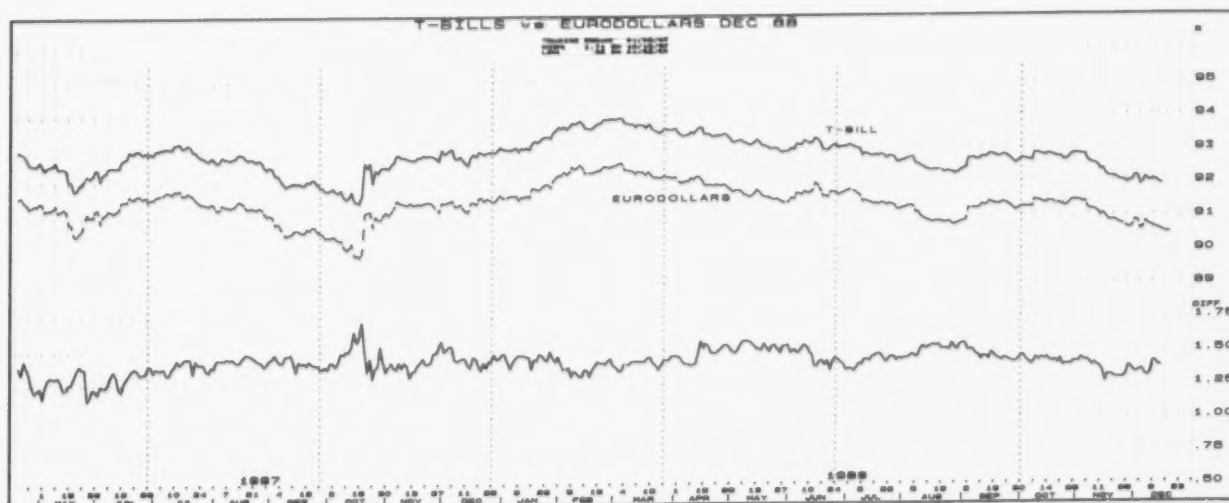
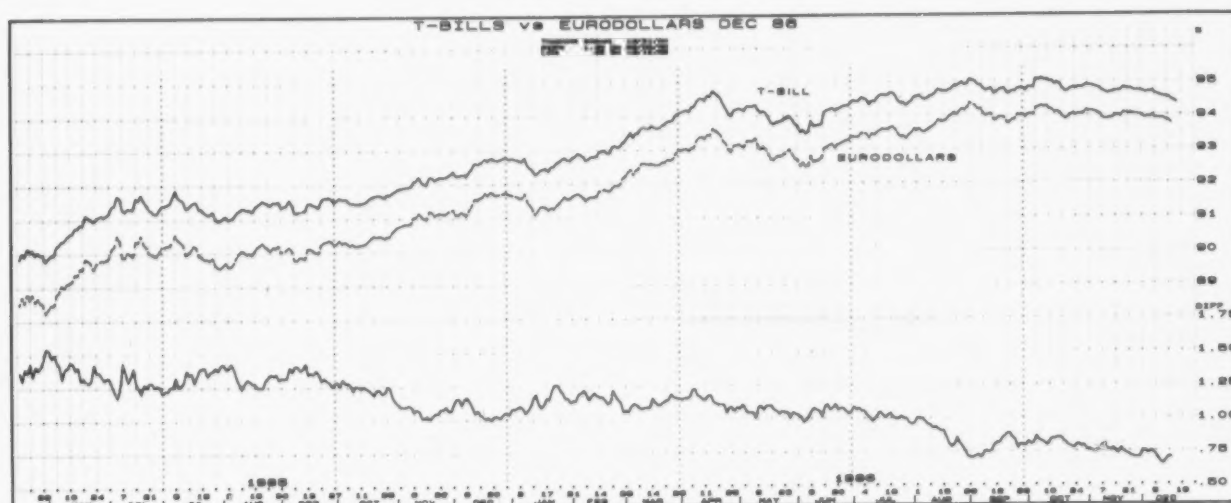
Sophisticated traders who stay well informed can probably use this analysis to successfully trade the TED spread as an outright commitment or a hedge vehicle in situations where they can muster the appropriate fundamental arguments. However, they are advised to use conventional technical analysis to monitor their positions because, like other spreads and futures in general, the TED is more complex than it appears on the surface. Technical analysis could be protection against the unanticipated variable or surprise. Technical analysis might also aid in coping with another possible risk, the liquidity risk. At times, market prices appear not to adjust to events, because of lack of activity or temporary absence of trading capital.

It is worthwhile to note some of the mechanical details of this spread trade. Initial margin requirements for the TED spread run from about \$500 to \$1,000, whereas the underlying Treasury bill and ED contracts might require initial margin in the neighborhood of \$800 to \$3,000, depending on the type of account and credit worthiness. One point per contract is the equivalent of \$25.00. At this time, there are no limits to daily price moves in the underlying contracts, though this could change. At one time, differing price limits for the ED and T-bill contracts created real inconveniences for spread traders. Trading hours at this time are from 8:20 a.m., New York time, to 3:00 p.m.

The last trading day for Treasury bill futures is the day before the first delivery date, which changes from expiration to expiration.* The last trading day for the Eurodollar contract is the second London business day before the third Wednesday of the delivery month. Traders should be aware of these differing expiration dates.

Because of this discrepancy, and the fact that hedgers begin to rotate out of the nearby month as early as two months prior to the last trade date, a trader may do well to trade the TED in the deferred cycle to avoid hedge flows and expiration problems. We have already noted above that the existence of an active options market may from time to time influence the price behavior of the ED contract in unexpected ways.

*The T-bill delivery cycle is tied to the maturity cycle of the 1-year T-bill. T-bill delivery begins on the first day of the spot month on which a 13-week bill is issued, and a 1-year bill has 13 weeks remaining to maturity. This makes the old 1-year bill deliverable, and helps enhance liquidity and avoid supply tightness. But it keeps the delivery dates from occurring in the same week of each delivery month. Traders are advised to check the IMM's official schedule. For 1990, the first-delivery days are: March 7, June 27, September 19 and December 12.



UNDERSTANDING AND ANALYZING THE SOYBEAN MARKET

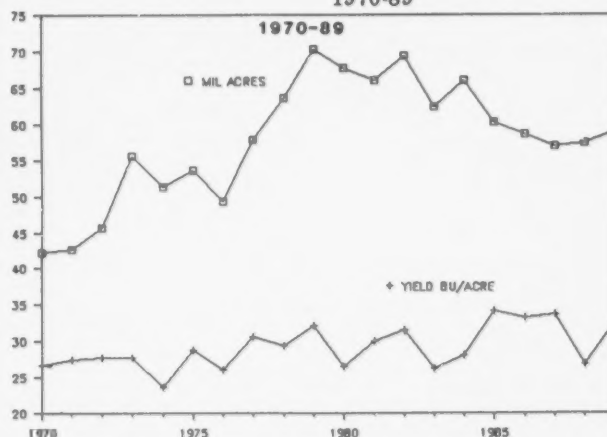
BY WALTER SPILKA

Soybeans have been commercially produced in the U.S. since the 1920s. Production increased gradually, as markets for the processed products, soybean meal and soybean oil, developed. The earliest commercial varieties of soybeans were brought to the U.S. from Manchuria in Northeast China. The varieties grown today originated in strains which came from a part of China that has a climate similar to the northern central U.S. The numerous varieties of soybeans are adapted to differing soil and climatic conditions. The soybean is classified as a legume, since it extracts nitrogen from the air and uses it for its own growth and for storage in the soil. While most of the crop is planted in May and June, maturity is determined primarily by the amount of daylight received.

Soybeans are grown for processing into soymeal and soyoil. The growth in soybean production mirrors expanding demand for both soymeal and soyoil. Soymeal finds its primary use in feed rations for livestock and poultry, while soyoil is used mostly as a cooking oil. Soybeans are grown in many states, but the north central U.S. has the greatest concentration of production. In 1989, Illinois, Iowa, Indiana, and Minnesota accounted for over half of the U.S. crop.

Over the last ten years, U.S. soybean production has averaged 1.89 billion bushels, with yields of just over 30 bushels per acre and planted acreage of 64.2 million. Yields have shown a slight improve-

Figure 1. U.S. Soybean Planted Acreage and Yield, 1970-89



ment over time, and more effective fertilizers and pesticides, along with improved management techniques, have combined with a reduction in lower yielding acreage. Between 1980 and 1984, plantings averaged just over 68 million acres, while between 1985 and 1989, they fell to only 60 million. (Table 1., Figure 1.)

One of the major developments in the U.S. soybean market has been a decline in acreage planted in the Delta and Southeastern states. In Mississippi, Arkansas, and Georgia, acres planted to soybeans during 1983 and 1984 averaged 18.3 million, while in 1988 and 1989 the average was only 13.8 million. The early varieties of soybeans were well-adapted to the South, due to a climate similar to parts of China. In the 1940s, new varieties of soybeans were developed, and some of the initial southern types were not well suited for harvesting by combine. Additionally, some major production areas like Mississippi had soils that drained poorly. Southern soybeans proved susceptible to root rot and nematode infection.

The major advantages of the southern areas were the longer growing season and less threat of frost. This enabled producers to plant soybeans after harvesting winter wheat. This "double cropping" can account for between four million and eleven million acres of soybeans planted in the Delta and Southeast. Despite these advantages, yields have not risen enough to make soybeans a consistently profitable crop. In recent seasons, the Southeast has been affected by very dry weather which has worked against soybean producers. Continuing problems with pests and diseases have also contributed to below-average yields. Additionally, government programs favor the development and maintenance of acreage bases for crops like corn

Table 1. U.S. Soybean Acreage, Yield, and Production, 1970-89 (million acres and bushels)

Year	Planted	Yield	Production
1970	43.1	26.7	1,127
1971	43.5	27.5	1,176
1972	46.9	27.8	1,271
1973	56.5	27.8	1,548
1974	52.5	23.7	1,216
1975	54.6	28.9	1,548
1976	50.3	26.1	1,289
1977	59.0	30.6	1,767
1978	64.7	29.4	1,869
1979	71.4	32.1	2,261
1980	69.9	26.5	1,798
1981	67.5	30.1	1,989
1982	70.9	31.5	2,190
1983	63.9	26.5	1,636
1984	67.8	28.1	1,861
1985	63.1	34.1	2,099
1986	60.4	33.3	2,007
1987	58.2	33.9	1,938
1988	58.8	27.0	1,549
1989	60.7	32.4	1,927

Source: NASS, USDA

and cotton, which compete with soybeans. The trend toward less acreage in the South is expected to continue.

Factors Affecting Production

In a given season, the amount of acreage planted is important in determining the level of production and prices. The planting decision, in turn, is based on a number of factors, not the least of which are price expectations. While prices received for a prior crop play a part in the decision, expectations of higher prices are likely to lead to more acreage. The anticipated price of soybeans relative to substitute crops like corn and cotton will result in shifts in acreage. As a general rule, soybean prices need to be more than two-and-a-half times the price of corn for a move to more soybean acreage. The fact that corn is produced under a government program that favors preservation of an acreage base limits how much of a shift can occur. U.S. farm policy has been moving away from program provisions that do not allow flexibility in the planting decision. This means that in the future there could be wide swings in acreage among competing crops.

Other factors to be considered include planting conditions during mid-May and early June. Since corn planting occurs before soybeans, any delays due to wet weather can lead to a shift from corn to soybeans. At the same time, a dry spring can result in an expansion of corn acreage at the expense of soybeans. The progress of the winter wheat harvest is also important in determining double-cropped acres, since extensive delays can cut short the season in which a soybean crop can be grown.

The other variable determining the level of production is yield, which is influenced primarily by the weather. While weather patterns are mostly cyclical, they are complex with different cycles interacting over time. In recent seasons, the weather phenomenon known as El Nino has had an impact on crops in many areas. During an El Nino period, normal Pacific Ocean winds which blow towards the east are weakened, resulting in warmer ocean temperatures off the coast of South America and heavy rainfall. In turn, the normally heavy rains that fall from Southeast Asia to Australia are reduced. The El Nino of 1982-1983 brought drought to Asia, Africa, and Australia, while the U.S. had excellent conditions in 1982.

While soybeans can be damaged by poor weather, they are not as vulnerable as corn. The soybean plant can withstand periods of hot and dry weather, which typically occur during August. Under very stressful conditions, the plant will enter a semi-dormant state until conditions improve. Dry conditions in July will usually result in some reduction in potential yields, while July rainfall is important to obtaining optimal yields. Temperature extremes are more critical during August than July.

The interaction of harvested acreage and yield results in the crop. After a number of years of increases, production of soybeans in the U.S. has

Table 2. U.S. Soybean Crush and Exports, 1970-89
(million bushels)

Year ¹	Crush	Exports
1970	760	434
1971	721	417
1972	722	479
1973	821	539
1974	701	421
1975	865	555
1976	790	564
1977	927	700
1978	1,018	739
1979	1,123	875
1980	1,020	724
1981	1,030	929
1982	1,108	905
1983	983	743
1984	1,030	598
1985	1,053	740
1986	1,179	757
1987	1,174	802
1988	1,058	527
1989	1,100	580

1 - year beginning Sept. 1

Source: ERS, USDA

been declining. This has been due primarily to a reduction in acreage in the South. Large declines in 1983 and 1988 were the result of droughts. A reversal of the trend toward smaller crops may only be possible if more high-yielding acreage is planted in the Corn Belt.

Soybean Usage

The two major categories of soybean usage are processing and exports. Demand for soybeans for processing is derived from the demand for the products: soybean meal and soybean oil. An explanation of the factors impacting the product markets,

Figure 2. U.S. Soybean Crush and Exports, 1970-89

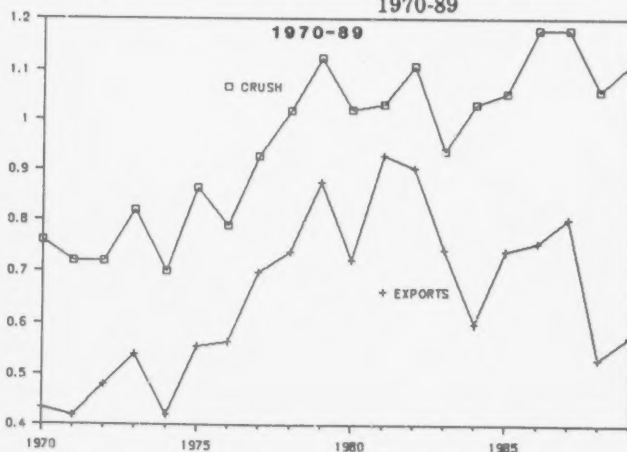


Table 3. Major Markets for U.S. Soybean Exports
(million tonnes)

	1988/89	1987/88	1986/87	1985/86
Japan	3.305	3.965	4.136	4.482
Netherlands	2.728	4.391	3.394	2.722
Taiwan	1.505	1.883	2.072	1.548
Mexico	1.271	.890	1.117	.809
Spain	1.090	1.526	1.791	1.533
S. Korea	.908	1.084	1.022	.974
W. Germany	.636	1.354	1.425	1.291
Belgium	.525	.715	.979	.902

Source: FAS, USDA

as well as the processing decision, follows in subsequent sections. The demand for soybeans in export markets is derived from the demand for soymeal and soyoil in foreign countries. While demand for one or both products may be strong, it does not follow that exports will be robust, since the products instead of soybeans can be imported.

Primary factors which affect U.S. exports include available supplies of soybeans, soymeal, and soyoil in other countries, as well as the supply and prices of competing high-protein oilseed meals and vegetable oils. Changes in the relative values of currencies of importing and exporting countries can affect trade decisions. In a period of dollar weakness, U.S. exports may be larger, since an importer can purchase more of the commodity with given amounts of local currency. The inverse relationship between the value of the dollar and exports is not that close, since other factors may be more important.

U.S. soybean exports rose sharply between 1974 and 1981, only to trend lower thereafter. Export demand is much more variable than processing demand, since oilseed crops grown in foreign countries will impact U.S. exports. The factors affecting exports are numerous, but among the more important are the level of foreign soybean production (primarily from South America), other foreign oilseed production, and the derived demand for the two products. (Table 2., Figure 2.)

The major factor affecting U.S. soybean exports has been rapidly increasing soybean production in Brazil and Argentina. Total output of soybeans in these countries has gone from being a third of U.S. production in 1982 to over half in the 1988 season. Agricultural policies in the two countries encourage oilseed production by providing low-cost inputs and production loans. Excess processing capacity enables the countries to crush a large portion of the crop and export soymeal and soyoil. The value added to the soy products allows for enhanced foreign exchange earnings relative to exports of soybeans. As a result, policies have been implemented that encourage exports of products instead of soybeans. This is accomplished through differing levels of ex-

port taxes: the levy on soybeans is higher than on soyoil and soymeal. In Argentina, where export taxes are used, the portion of the crop exported as soybeans has fallen from over 50 percent to about 20 percent in ten years. In Brazil, about 20 percent of the crop is exported.

The South American crops are planted during November and December and harvested between late February and April. After processing, the export season can extend from April until October, although most sales occur during the Northern Hemisphere's summer. Key factors to monitor are weather developments during the growing season, with Argentina in particular subject to drought. Extensive economic difficulties in both countries tend to hinder production by making input costs high and production loans difficult to obtain. At the same time, uncertainty about economic trends and policies makes production decisions difficult. While these problems exist and should continue, production is still expected to increase. This is due to the availability of fertile land and the strong need of these countries to obtain the foreign exchange that exports generate.

Soybeans are the dominant oilseed grown worldwide, with a market share of about 50 percent. Other oilseeds and their respective shares of world production are: cottonseed, 15 percent; peanuts, 10 percent; sunflowerseed, 10 percent; and rapeseed or canola, 10 percent. Soybeans are also the major oilseed in terms of exports, with three-quarters of the market. The largest buyers of U.S. soybeans are listed in Table 3. Japan and the Netherlands are by far the most important destinations. The Netherlands imports soybeans for processing, and exports soyoil and soymeal. While U.S. exports are impacted mostly by South American production, foreign stocks of oilseeds, meals, and oils are also influential factors. Large foreign supplies of vegetable oils would cause processors to reduce soybean imports, since crushing more beans adds to oil stocks.

Processing or Crushing

Each season over half the U.S. crop is crushed domestically, with the remainder mostly exported. The method of processing used most widely is with solvent. Dehulled, cracked and flaked soybeans are mixed with a "hexane" solvent, which dissolves the oil from the flakes. The solvent is removed from the flakes, which are then processed further into soymeal with a protein content of 44 percent to 49 percent. The soyoil is then separated from the solvent by distillation. As the chemical extraction method has become more efficient, yields of both soyoil and soymeal have increased. Soymeal yield per bushel of processed soybeans has been relatively stable in recent years at 47 to 48 pounds. Oil yields can vary due to weather conditions, but will generally range between just under 11 pounds and 11.5 pounds per bushel.

The processing cost per bushel varies with the efficiency of each mill. As a general rule, the cost to process a bushel of soybeans will range between

30 cents and 50 cents. The gross processing or crushing margin represents the value of the combined products obtained minus the cost of the soybeans used.

This margin may be profitable or unprofitable, depending on a variety of factors, including seasonal considerations, as well as the supply and demand of the products and the soybeans. The margin is likely to become widest or most profitable around the harvest, when the available supply of soybeans is the greatest. This would correspond with the point in the season when soybean prices are lowest. The harvest period also represents a time of tight stocks of soymeal and soyoil. Processing plants become more active in the weeks following the harvest, as stocks of soymeal are built up for winter feeding needs. As a result, the September-December period is a time of low soybean prices, relative to soymeal and soyoil. The lower soybean prices are in relation to the combined value of the products, the more profitable crushing is.

Profitable crushing margins prompt processors to bid aggressively for new crop supplies of soybeans, which in turn raises their price relative to the products. A more active crushing pace leads to an increase in stocks of soymeal and soyoil, reducing their prices relative to soybeans. The effect of the increase in processing is to gradually lower the profitability in margins or even to make them unprofitable. At that point, the economic forces begin to reverse, as processors bid less aggressively for soybeans while crushing fewer beans. This allows soybean prices to decline relative to the products, and as stocks of soymeal and soyoil decline, prices of the products rise relative to soybeans. Crushing margins once again become profitable, and the cycle starts anew.

Determination of the size of the processing margin at any time provides a measure of the outlook for the complex. Margins can be calculated using representative cash prices or prices for futures con-

Table 4. Major Markets for U.S. Soymeal Exports (million tonnes)

	1988/89	1987/88	1986/87	1985/86
Soviet Union	1.349	1.320	0	0
Venezuela	.564	.633	.644	.591
Canada	.505	.632	.594	.574
Algeria	.404	.286	.106	.107
Italy	.250	.621	1.021	.599
Netherlands	.239	.646	1.032	1.277
Iraq	.162	.282	.242	.078

Source: FAS, USDA

tracts. The value of the soymeal is calculated by taking the quoted price on a ton (2,000 pounds) basis and dividing by 2,000 to determine the price per pound. Assuming a yield of 48 pounds per bushel processed, the value of the meal is found. For example, a soymeal price of \$200/ton implies a price per pound of 10 cents for a value of \$4.80 (10 cents x 48 lbs.) For soybean oil, prices are mostly quoted on a per pound basis. A price of 15 cents/lb. and an assumed yield of 11 pounds per bushel means that the value of the products is \$6.45 (\$4.80 + \$1.65). Assuming the price of a bushel of soybeans is \$6.00, the gross processing margin is 45 cents (\$6.45 - \$6.00) per bushel crushed. Whether this margin yields a net profit depends mostly on the efficiency of each mill.

Soybean Meal

Soybean meal is a high-protein feed primarily given to non-ruminants, such as hogs and poultry. While corn is the main source of energy in the ration, soymeal provides the protein needed for growth. For each bushel of soybeans processed, 47 to 48 pounds of soymeal are produced. The amount of crude protein by weight can vary between 42 percent and 50 percent, though most is processed to yield 44 percent or 49 percent. The higher protein levels are used in performance feeds. The protein content of soymeal is generally higher than meals such as cottonseed and sunflowerseed, but lower than peanut meal. Due to its widespread production and availability, soybean meal provides much of the price direction for other protein meals. While the meals can be substituted for each other to some degree, factors such as protein level, price, and availability are important considerations. For example, cottonseed and peanut meal would be more available in the Delta, Southwest, and Southeast, than in the Corn Belt. Sunflowerseed meal would be available in the upper Midwest.

In the U.S., about 80 percent of the high-protein meal fed is soymeal, and 80 percent of the soymeal produced each year is used domestically. Most soymeal is used in poultry and hog feeding. With the rapid expansion of the poultry industry in the 1970s and 1980s, more meal is used to feed broilers, hens, pullets, and turkeys. Poultry rations

Figure 3. U.S. Soybean Meal: Exports and Domestic Use, 1970-89

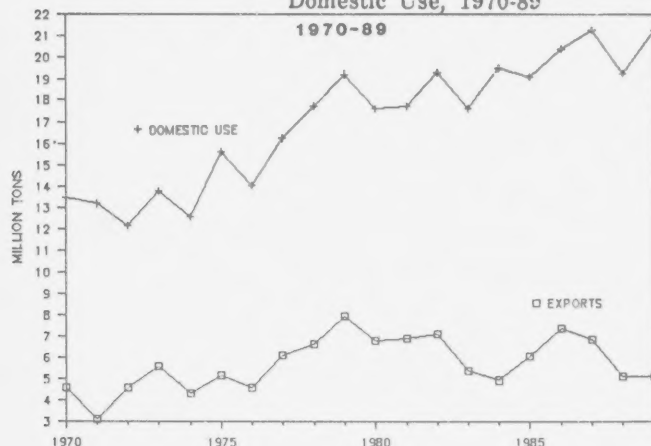
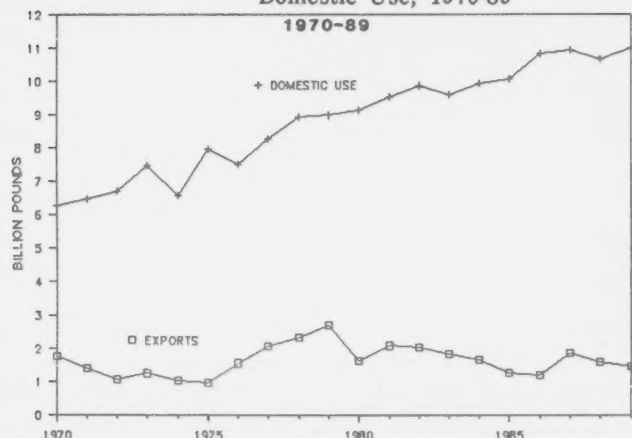


Figure 4. U.S. Soybean Oil: Exports and Domestic Use, 1970-89



are more amenable to substitution of other high-protein feeds like fishmeal. Hog producers are more likely to retain soymeal in the ration and not substitute as much. For ruminants like cattle, soymeal is not as important, since protein can be obtained from other sources.

The primary determinants of domestic usage of soymeal include the price of meal and its substitutes and also the price and production of poultry and livestock. Indicators of the economic situation in the hog sector include sows farrowing and the ratio of hog prices to corn prices. In the poultry sector, eggs set data and chick placements provide some indication of meal use. Another consideration is the weather, particularly conditions during the winter months. Cold, wet winters mean that animals require more feeding of concentrates just to maintain body temperature. Rains during the spring mean that pastures are more lush, and feeders utilize them to reduce feed concentrate intake. The trend in domestic use of soymeal has been higher, due primarily to the expansion of the poultry industry. (Figure 3.)

Exports make up about 20 percent of U.S. soymeal production. In contrast to the uptrend in domestic use of meal, the trend in exports has been mostly sideways, reflecting increased competition from other soymeal-exporting countries, as well as other high-protein meals. Soybean meal comprises about 60 percent of the world's high-protein meal production and 70 percent of the export market. World production of soymeal is dominated by the U.S. and the South American countries. While the U.S. is the largest producer, Brazil has emerged as the biggest exporter, with a market share of over one third. The U.S. share has slipped below 20 percent. Argentina has increased its exports and in 1989/90 could ship more soymeal than the U.S.

Recently, the major markets for U.S. soymeal have been the Soviet Union, Venezuela and Canada. This represents a significant shift from three years earlier, when the European Community (EC) was the major market. The factors affecting U.S. exports are prices and availability of competitive high-

protein meals, as well as stocks of vegetable oils. Most of the countries importing large amounts of soymeal have developing poultry and livestock industries. In the Soviet Union, soymeal is used to improve the efficiency of rations. The EC has reduced its purchases of U.S. meal, apparently substituting South American meal for it. Much of the protein meal demand in the EC is satisfied with domestically produced rapeseed and sunflowerseed meal. (Table 4.)

Large South American soybean crops usually mean ample stocks of soymeal for export. South American meal is often preferred to U.S. supplies, so a key factor is the export outlook for both Brazil and Argentina. Foreign stocks of vegetable oils are also a consideration, since importers will opt to purchase meal instead of soybeans if oil stocks are large.

Soybean Oil

For each bushel of soybeans processed, approximately 11 pounds of soyoil are produced. Because soyoil typically has less value than soymeal, demand for meal in large part determines how much oil is produced. Globally, soyoil is the most important vegetable oil in terms of production, with the U.S. the largest producer and consumer. About 90 percent of the soyoil produced in the U.S. enters the domestic market. Primary uses are in cooking and salad oils, as well as shortening and margarine. Soyoil dominates other edible oils in these uses, but most oils are readily substitutable for each other. The relative prices of alternatives like sunflowerseed oil will largely determine which oil is used, though there are certain processing costs in making one oil a substitute for another. In past years, imports of tropical oils like palm and coconut had risen. However, these oils contain levels of saturated fats which are higher than soyoil, and there has been pressure from consumer groups to reduce their use. There has also been more utilization of rapeseed or canola oil in the U.S., since new varieties are fit for human consumption.

Domestic use of soyoil has been trending higher for many years, in line with population growth. Year-to-year changes in soyoil use are related to levels of economic activity. Under improving

Table 5. Major Markets for U.S. Soyoil Exports (thousand tonnes)

	1988/89	1987/88	1986/87	1985/86
Pakistan	424	473	83	232
Morocco	86	50	43	0
Mexico	47	12	21	56
Ecuador	25	13	19	24
Venezuela	21	5	12	12

Source: FAS, USDA

economic conditions, consumers have more income and tend to dine in restaurants and fast-food outlets. Soyoil is used extensively in convenience foods, snack foods, and fried chicken and fish. While yearly soyoil use is almost always higher, declines can be noted during economic downturns or recessions. (Figure 4.)

Soyoil exports amount to about 10 percent of production. Exports, a relatively small part of total disappearance, can be much more volatile than domestic use. While the export trend over the last twenty years is best described as sideways, over the last ten years it has turned lower. This trend mirrors intense competition from South American soyoil exports, as well as foreign vegetable oils. A large portion of U.S. soyoil is sold under concessionary or government programs that effectively reduce prices or lower interest rates on loans. Not only are these programs used to sell surplus supplies, but they are also designed to counter the subsidies of other exporters. Additionally, they enable developing countries with limited financial resources to purchase a basic cooking ingredient. In recent years, countries that have benefited from these programs include Turkey, Tunisia, Morocco, India, Algeria, Bangladesh, and Pakistan. (Table 5.) One factor to note is that such programs have a cost, and the government's availability and allocation of funds will largely determine how much oil can be exported.

A major influence on the level of soyoil exports has been the steady increase in South American soybean production. Brazil and Argentina have excess crushing capacity, and Argentina uses taxes to encourage the export of soyoil. This has resulted in about 90 percent of Argentina's soyoil output being exported. Brazil exports about 30 percent of production, though this figure varies. Brazil diverts much of its production back into the domestic market to dampen inflation. Indications of large crops in South America can mean that U.S. soyoil exports during the spring and summer will be below trend.

In addition to soyoil, there is competition from other oils. While soyoil is the world's most widely produced oil, palm oil is the most heavily traded. Palm oil exports comprise about a third of world oil shipments, compared with 20 percent for soyoil. Palm oil production in Malaysia and Indonesia is increasing at a steady rate, and these countries have a major advantage in that they are situated near the expanding markets of Asia. Countries which have become important vegetable oil markets include Pakistan, India, Bangladesh, and China.

Futures Markets, Hedging and Options

Soybean complex futures are very actively traded. The Futures Industry Association (FIA) reported that during 1989 trading volume in soybeans was 9.6 million contracts, ranking it be-

hind Treasury bonds, Eurodollars, crude oil, the S&P 500 Index, and gold. Soybean meal futures had a 1989 volume of 4.5 million contracts for a ranking of fourteen. Soyoil futures volume in 1989 was 4.3 million contracts, ranking it seventeenth. Options on soybean complex futures began trading in the mid-1980s, and activity has grown quickly. In 1989, 1.9 million soybean options were traded, while meal volume was 112,500, and oil was 101,200.

The main purpose of the futures and option markets is to facilitate hedging activities. Hedging is a method of price protection used to minimize losses or protect profits during the production, storage, processing, and marketing phases. Hedging involves the taking of a position in the futures market equal and opposite to that of the cash position. For example, a soybean producer harvesting a crop of 5,000 bushels is considered to be long in the cash market. As prices change over time, the value of the producer's inventory changes, and if prices decline, losses will be sustained. The producer can protect his profit margin by initiating a hedge. The sale of one soybean futures contract at harvest would result in an equal and opposite position in the cash market. As prices decline, the short futures position posts gains, while the cash soybeans lose value. If there is no change in the relative price relationship between the cash and futures markets, then the loss in one market would be offset exactly by a gain in the other, with the net effect protecting the initial cash price.

A better understanding of the soybean complex is obtained by examining the participants in the market and how they hedge their price risks. The previous example is termed a selling hedge and is used by producers and holders of inventories. It should be noted that the price relationship between the cash and futures markets, which is called the basis, is important in that it will determine how well the hedge works.

Seller's Hedge

Cash	Futures
October: Producer expects to harvest then store 20,000 bu. when the soybean price is \$6.50/bu.	October: Producer sells four March futures contracts at \$7.00/bu.
February: Producer sells 20,000 bu. of soybeans at a price of \$6.00/bu.	February: Producer buys four March futures contracts at \$6.50/bu.
Result: 50 cents/bu. loss	50 cents/bu. gain

The buying hedge is the opposite of the selling hedge. The risk is that prices of the commodity will increase before the physical product is purchased. An example would be the exporter who, having contracted to sell the commodity, has not actually purchased it. While the price is set, the risk to the exporter is that prices will increase

between the time of the agreement and the time of acquisition of the inventory. To reduce this risk, enough futures contracts are bought to cover the sales commitment.

Another important hedge involves the crush. During periods when processing margins are profitable, crushers will look to lock in those margins by purchasing soybean futures, while simultaneously selling soyoil and soy meal futures. Essentially, this hedges the risk that soybean prices will rise relative to the products. In the event that margins decline to unprofitable levels, the futures position will insure that no significant loss accrues to the processor. By putting on a processing hedge, the crusher anticipates buying soybeans in the cash market at a future date, while selling soyoil and soy meal.

To ensure a proper hedge, the correct ratio of soybeans to products is needed, since a bushel of processed soybeans yields approximately 48 pounds of soy meal and 11 pounds of soyoil. To put on the crush, a processor would buy 10 contracts of soybeans, while simultaneously selling 12 contracts of soy meal and 9 contracts of soyoil. This hedge would most likely be initiated in the same contract month, or by using November soybeans and December products. When margins are not profitable, the crush can be reversed. This would require selling 10 contracts of soybeans, while simultaneously purchasing 12 meal and 9 oil contracts.

Options on futures contracts were introduced in the 1980s and have proven successful. They complement futures by providing more flexibility and a greater number of hedging strategies. The following example shows one way in which an option can be used.

A soybean producer with a crop in the bin can set a price floor for the inventory by purchasing put options. A soybean put with a strike price of \$7.00/bu. may have a premium of 20 cents. The premium represents the cost of the put, in this case \$1,000 (20 cents x 5,000 bu. = \$1,000). If soybean prices rise, the put will become worthless, in which case the premium paid becomes the cost of insuring against a decline in cash prices. In the event that prices fall, the producer can sell the put for a profit minus the amount of the premium paid. Essentially, the use of the option allows the producer to gain in the event of a price rally, while offering protection if prices decline.

Buyer's Hedge

Cash	Futures
September: Exporter makes commitment to sell 20,000 bu. of soybeans at \$7.00/bu.	September: Exporter buys four January contracts at \$7.25/bu.
December: Exporter purchases 20,000 bu. to fulfill commitment at \$7.50/bu.	December: Exporter sells four January soybean contracts at \$7.75/bu.
Result: 50 cents/bu. loss	50 cents/bu. gain

Data Sources and Reports to Follow

Daily - Futures and cash prices can be found in *The Wall Street Journal*. The National Weather Service provides daily forecasts, as well as periodic 30 and 90-day outlooks.

Weekly - USDA export inspections are released on Monday afternoons. They indicate current and cumulative exports of soybeans. Export sales are released by USDA on Thursday. This report provides detailed information on exports and sales by country of destination.

Crush data are released on Thursday by the National Oilseed Processors Association. The report includes amounts processed, cumulative crush, and capacity by region. During the growing season, the USDA releases a summary of crop conditions on Monday. The numbers include planting, harvesting, and maturity rates.

Monthly - Data on the crush are released by the Census Bureau. This report contains stocks of soybeans at mills, soy meal production and stocks, and soyoil production and stocks. The Commerce Department releases the *Fats and Oils* report. Included in the report are production, stocks, and use of soyoil, as well as other oils.

The USDA releases crop production reports during August, September, October, November, and January. Acreage estimates are released in July. The USDA releases U.S. supply and demand estimates monthly. World supply/demand numbers are also reported, along with foreign crop production estimates. USDA's Foreign Agricultural Service releases *World Oilseed Situation and Market Highlights* monthly. It provides an excellent summary and data on foreign production and use of oilseeds, oils, and protein meals.

Other - USDA issues a quarterly publication called *Oil Crops*, providing data and analysis of the current situation in the soybean complex.





ANALYZING THE COMMITMENTS OF TRADERS REPORTS

BY KENNETH H. SHALEEN

Every trader has thought at one time, "Wouldn't it be amazing to view a market where the positions of all participants are known?" This would give the trader the perspective of looking into a goldfish bowl; the movement of each player would be readily observable. This situation, of course, does not exist. However, in the U.S. futures markets, the Commitments of Traders reports, prepared by the Commodity Futures Trading Commission (CFTC), do yield some important insights into the internal makeup of the markets each month. This article will explain what the reports are and how they can be used, and will examine a practical application.

Exchange clearing members, futures commission merchants, and foreign brokers are required to file daily reports with the CFTC listing any trader's position on their books that exceeds the reporting level. The reporting level for the IMM Eurodollar futures, for example, is 400 contracts. The live hog futures contract, which will be analyzed in this article, has a reporting level of 50 contracts.

Positions of the reportable traders are classified as to whether they are commercial or non-commercial. "Commercial" is applied to any reportable position used for hedging. For purposes of analysis, this reporting commercial category will be referred

to as the "Large Hedgers." The other large trader category (the non-commercials) will be labeled the "Large Speculators."

The non-reporting category is derived by simply subtracting the reported positions from the total level of open interest. These "Small Traders" consist of both hedgers and speculators. The exact number of non-reporting traders is not known.

The CFTC releases the reports on about the eleventh day of each month. The data are as of the end of the previous month. A sample page from the September 29, 1989 Commitments of Traders, Chicago is shown in Figure 1.

The pertinent facts from the reports are published in tabular format as a regular feature of the Commodity Research Bureau (CRB) Futures Chart Service. Information from the September 29 Chicago Commitments report is shown in Figure 2.

Pioneering work in the analysis of the Commitments reports has been chronicled by William L. Jiler in previous editions of the *CRB Commodity Year Book*. A particularly insightful article can be found in the 1985 *Year Book*. Graphs of the normal long or short positions by category of trader have been updated through 1988 and are included at the end of this article. Ten years of data from 1978

were used to construct the graphs. No information is available for the year 1982, when the reports were temporarily discontinued.

Application

Examine the current open interest line on the Dec. 1989 live hog daily futures price chart in Figure 3. In the two month period ending September 29, total open interest showed an increase of 6,909 contracts. The smooth open interest line on the hog chart represents the 6-year average of total open inter-

Figure 1.

LIVE HOGS - CHICAGO MERCANTILE EXCHANGE COMMITMENTS OF TRADERS IN ALL FUTURES COMBINED AND INDICATED FUTURES, SEPTEMBER 29, 1989												
F U T U R E S	TOTAL		REPORTABLE POSITIONS								NONREPORTABLE POSITIONS	
	OPEN	INTEREST	LONG	SHORT	ONLY	LONG AND SHORT (SPREADING)	COMMERCIAL	TOTAL				
			LONG	SHORT	LONG	SHORT	LONG	SHORT	LONG	SHORT	LONG	SHORT
(CONTRACTS OF 30,000 POUNDS)												
ALL	30,875	10,386	2,910	2,521	2,521	4,045	6,347	16,952	11,778	13,923	19,097	
OLD	5,393	2,251	922	0	0	610	930	2,861	1,852	2,532	3,541	
OTHER	25,482	9,601	3,454	1,055	1,055	3,435	5,417	14,091	9,926	11,391	15,556	
CHANGES IN COMMITMENTS FROM AUGUST 31, 1989												
ALL	4,930	3,590	-325	1,133	1,133	172	517	4,895	1,325	35	3,605	
PERCENT OF OPEN INTEREST REPRESENTED BY EACH CATEGORY OF TRADERS:												
ALL	100.0%	33.6	9.4	8.2	8.2	13.1	20.6	54.9	38.1	45.1	61.9	
OLD	100.0%	41.7	17.1	0.0	0.0	11.3	17.2	53.1	34.3	46.9	65.7	
OTHER	100.0%	37.7	13.6	4.1	4.1	13.5	21.3	55.3	39.0	44.7	61.0	
NUMBER OF TRADERS IN EACH CATEGORY												
ALL	99	51	21	19	19	11	18	74	48			
OLD	33	17	7	0	0	4	6	21	13			
OTHER	92	48	21	8	8	10	17	63	41			
CONCENTRATION RATIOS PERCENT OF OPEN INTEREST HELD BY THE INDICATED NUMBER OF LARGEST TRADERS												
BY GROSS POSITION						BY NET POSITION						
4 OR LESS TRADERS			8 OR LESS TRADERS			4 OR LESS TRADERS			8 OR LESS TRADERS			
LONG	SHORT		LONG	SHORT		LONG	SHORT		LONG	SHORT		
ALL	11.3	15.7	19.7	21.8	9.8	14.1	17.0	18.9				
OLD	18.0	20.1	31.3	29.1	18.0	20.1	30.9	29.1				
OTHER	13.0	16.7	21.4	23.3	11.3	14.5	18.2	19.7				

est. Note that open interest would normally be expected to begin declining at this time of the year.

The September Commitments report can be used to determine which category of trader was increasing (or reducing) holdings during September and what direction (net long or short) each group faced. The next step is to compare the current situation to the historic net long or short position of each group at the end of September. This can be accomplished by using the updated graphs located at the end of this article. The more the current postings deviate from the historic norm, the more strongly this category of trader feels about the direction of prices.

Prior testing by the CRB has determined that the "Large Hedgers and Large Speculators had the best forecasting records, and the Small Traders had the worst by far." In addition, "the Large Hedgers were consistently superior to the Large Speculators." Armed with this knowledge, a trader can compare his views with that of the "smart money."

Methodology

The net long or short position in percentage terms is found in the CRB version of the Commitments reports in Figure 2. The data in the CRB table are derived from the actual Commitments reports. From Figure 1, the non-commercial reporting traders (Large Speculators) were long 10,386 contracts of the 30,875 contracts open at the end of September; this represented 33.6 percent of the total open long positions. The percentage that each category is long and short is found on the "all" line in the middle of the Commitments report. Notice that the Large Speculators were short 9.4 percent.

The CRB Commitments report lists the (rounded) percentages that each of the three main categories (spreaders are excluded) are long and short. The Large Speculators were 34 percent long and 9 per-

Figure 2.

COMMITMENTS OF TRADERS-LARGE HEDGERS, SPECULATORS AND SMALL TRADERS												
Open Interest Positions shown in Percent (Rounded) as of September 29, 1989												
	LARGE HEDGERS				LARGE SPECULATORS				SMALL TRADERS			
	LONG	SHORT	NET	Δ	LONG	SHORT	NET	Δ	LONG	SHORT	NET	Δ
CATTLE(LV)	20	39	-19	-16	21	11	10	14	54	46	8	0
CATTLE(FE)	16	18	-2	-8	21	8	13	12	56	68	-12	-5
COCOA	63	71	-8	0	12	14	-2	-2	24	14	10	3
COFFE	51	80	-29	-1	15	6	9	-8	32	12	20	9
COPPER	41	43	-2	23	10	9	1	-15	47	46	1	-9
CORN	47	39	8	0	14	8	6	0	34	48	-14	0
COTTON	59	61	-2	19	9	11	-2	-13	27	22	5	-4
CRUDE OIL(NY)	55	62	-7	-7	7	6	1	4	33	27	6	3
GOLD (COMEX)	66	56	10	-19	4	11	-7	9	21	24	-3	10
HEATING OIL #2	40	73	-33	-9	24	1	23	9	36	26	10	0
HOGS	13	21	-8	0	34	9	25	12	45	62	-17	-11
UNLEADED GAS	49	71	-22	-23	19	*	18	17	27	23	4	5
LUMBER	42	44	-2	-8	21	7	14	9	30	42	-12	-2
ORANGE JUICE	59	45	14	-4	6	24	-18	-1	31	26	5	6
PLATINUM	39	60	-21	-25	19	15	4	18	38	21	17	7
PORK BELLIES	5	16	-11	0	39	31	8	15	47	45	2	-16
SILVER (COMEX)	23	69	-46	-17	20	9	11	11	52	17	35	5
SOYBEANS	38	33	5	-2	9	14	-5	-5	43	43	0	7
SOYBEAN MEAL	56	50	6	1	5	8	-3	2	34	36	-2	-2
SOYBEAN OIL	47	50	-3	-7	6	6	0	0	40	37	3	7
SUGAR "11"	35	94	-59	-20	33	*	32	13	32	6	26	7
WHEAT (CHI)	41	27	14	-8	14	16	-2	3	36	48	-12	6
WHEAT (K.C.)	44	61	-17	-6	10	8	2	1	44	29	15	5
EURODOLLAR	62	61	1	1	3	2	1	-1	33	35	-2	1
MUNI BONDS	48	71	-23	4	28	17	11	-7	22	11	11	2
T-BILLS (90 DAY)	29	60	-31	-6	43	16	27	19	27	23	4	-13
T-BONDS	47	50	-3	0	14	9	5	0	36	38	-2	-1
T-NOTES	75	70	5	6	6	6	0	-6	19	24	-5	-2
NYSE COMPOSITE	18	13	5	14	34	42	-8	-4	35	32	3	-11
MMI-MAXI	57	38	19	14	22	27	-5	3	22	35	-13	-15
S&P 500	70	60	10	6	8	17	-9	-1	22	23	-1	-4
BRITISH POUND	39	62	-23	-76	22	7	15	32	39	31	8	44
DEUTSCH MARK	26	76	-50	-71	34	5	29	44	39	19	20	23
JAPANESE YEN	49	48	1	-42	12	15	-3	20	35	33	2	26
SWISS FRANC	27	38	-11	-32	22	22	0	9	49	38	11	23

NOTE: Applies only to C.O.T. Table.

Δ Change in % Net from Previous Month (PLUS — increased long or decreased short.

MINUS — increased short or decreased long)

* Less than .05%

NOTE: Positions do not equal 100% because intermarket statistics are not included.

cent short at the end of September (Figure 2). The "net" column is derived by simply subtracting the percent short from the percent long. Thus Large Speculators were 34% - 9% = 25% net long hog futures on September 29. The Large Hedgers were 13% - 21% = -8% or 8% net short, and the Small Trader stood at 45% - 62% = -17% or 17% net short.

The change in positions from the previous month is shown in both reports. In Figure 1, the change in number of contracts is seen. The CRB details the shift in the "delta" column. For example, the Large

Speculators were adding to longs (+3,590 contracts) and decreasing shorts (-325 contracts) during September. This shift is reflected in the +12 percent figure in the delta column for the Large Speculators in Figure 2. This means the Large Speculators increased their net long positions by 12 percent.

This brings the analysis to an intermediate state. It is evident that the Large Speculators correctly determined that live hog futures were in a price uptrend. However, the Small Traders were fighting the price trend. A look at the changes in open interest from the prior month yields these observations:

1. Large Speculators--adding to longs, reducing shorts; now more heavily net long than previous month.

2. Large Hedgers--adding slightly to both longs and shorts; still net short.

3. Small Traders--adding heavily to shorts; still net short.

Next, the seasonally normal live hog graph can be utilized. From this graph, the month-end normal percentage long or short position for each category can be obtained. The results are summarized in Table 1.

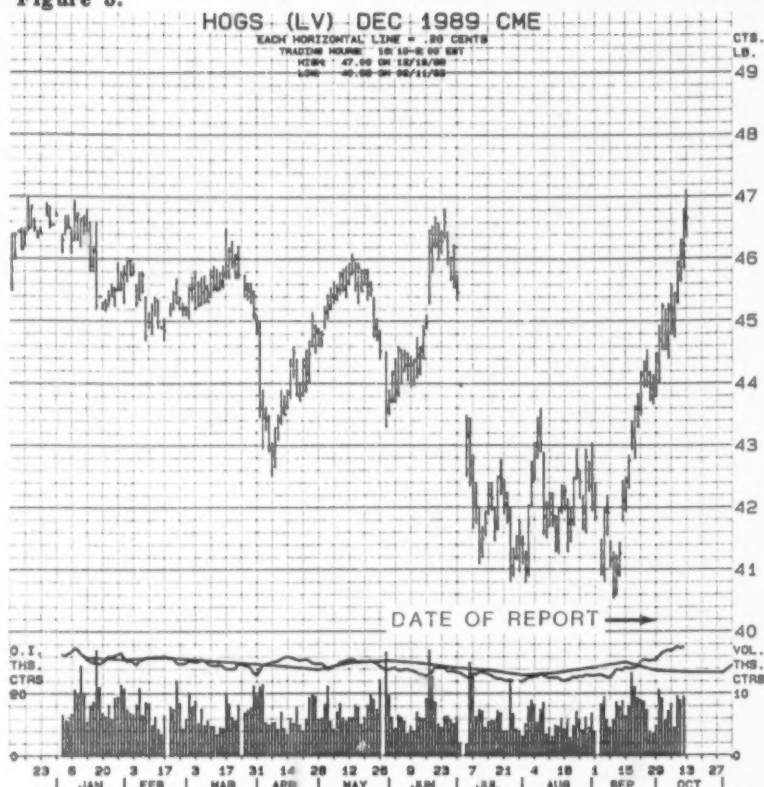
Table 1--Traders' Commitments, Live Hogs
(September 29, 1989)

Current Situation	Trader Category	Historic Normal
+25%	Large Speculators	+3.6%
- 8%	Large Hedgers	- 3.9%
-17%	Small Traders	+1.1%

Conclusion

The current situation shows an extreme imbalance from normal. Small Traders are heavily net short, when this category would be expected to be net long. The Large Speculators' position is also far from average; it is much more bullish than normal, ie. +25 percent, versus only +3.6 percent ordinarily. The Large Hedger class is more bearish (short hedged) than usual. But the deviation from normal

Figure 3.



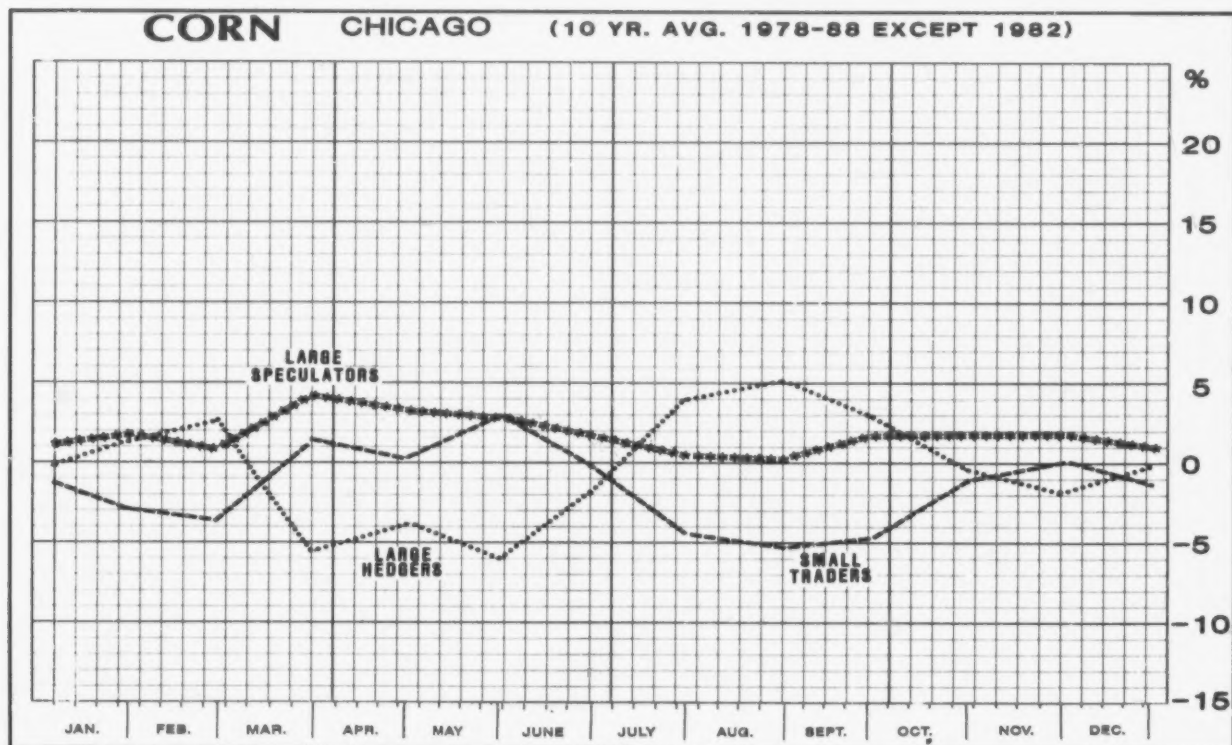
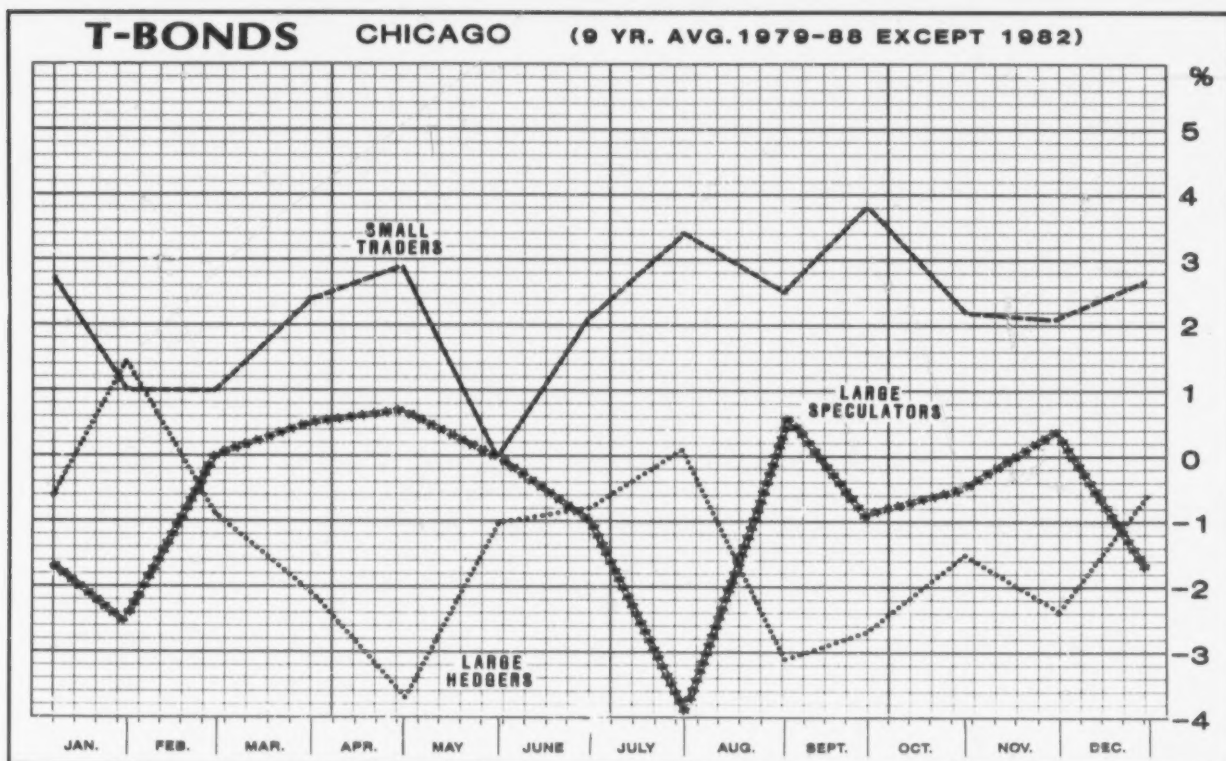
(the difference between -3.9 percent and -8 percent) is less than 5 percentage points. Prior investigation by the CRB has shown that deviation of less than 5 percentage points should be disregarded. Also, deviation of more than 40 points from the normal should not be used to forecast prices; something extraordinary would be occurring in that particular year.

Using the past "track records" of each category, a long position in live hog futures is favored. The price of the Dec. 1989 hog futures contract on October 12, 1989, when the report was available, was 46.57 cents/lb. Quotes moved higher, setting a life-of-contract high at 51.90 cents on November 27, and continued even higher into the expiration month, trading at 52.85 cents on December 14.

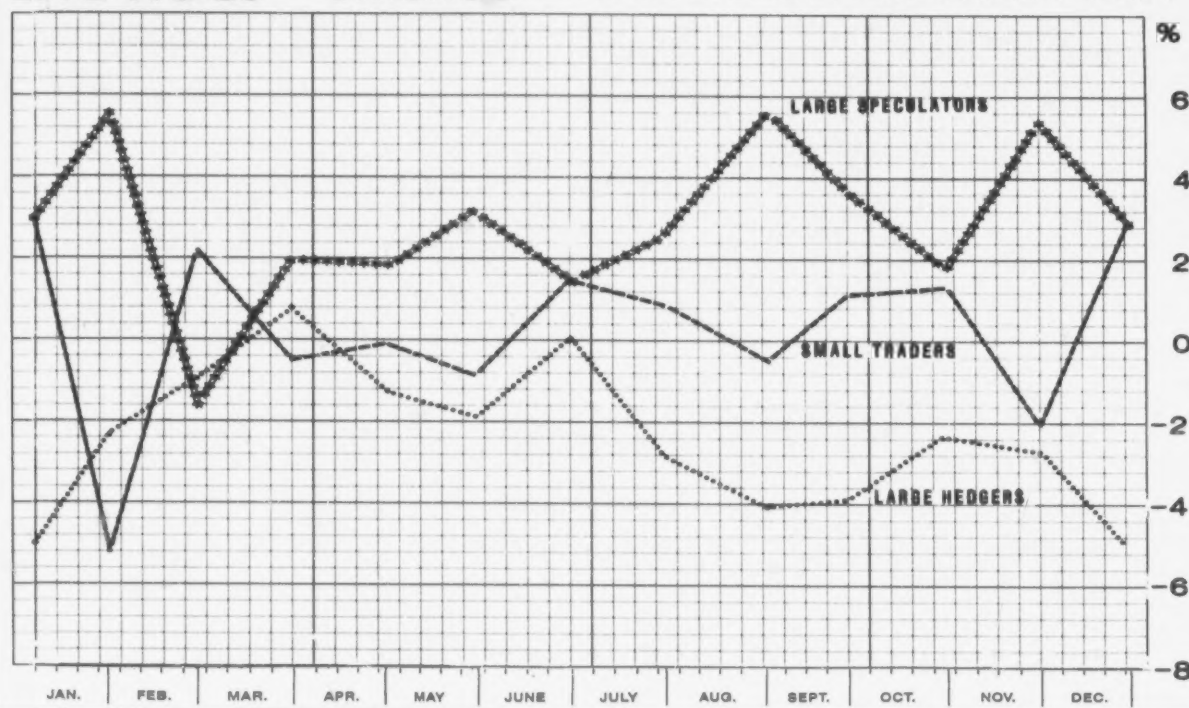
Using the Commitments reports in conjunction with historic normal graphs can be a powerful addition to a technician's use of open interest. The conclusions of the original research, begun in the early 1960s by the CRB, appear to be equally applicable to the markets of the 1990s.

Editor's Note: For further information on the use of open interest in technical analysis, refer to Mr. Shaleen's book *Volume and Open Interest: Cutting Edge Trading Strategies in the Futures Markets*, Probus Publishing, Chicago.

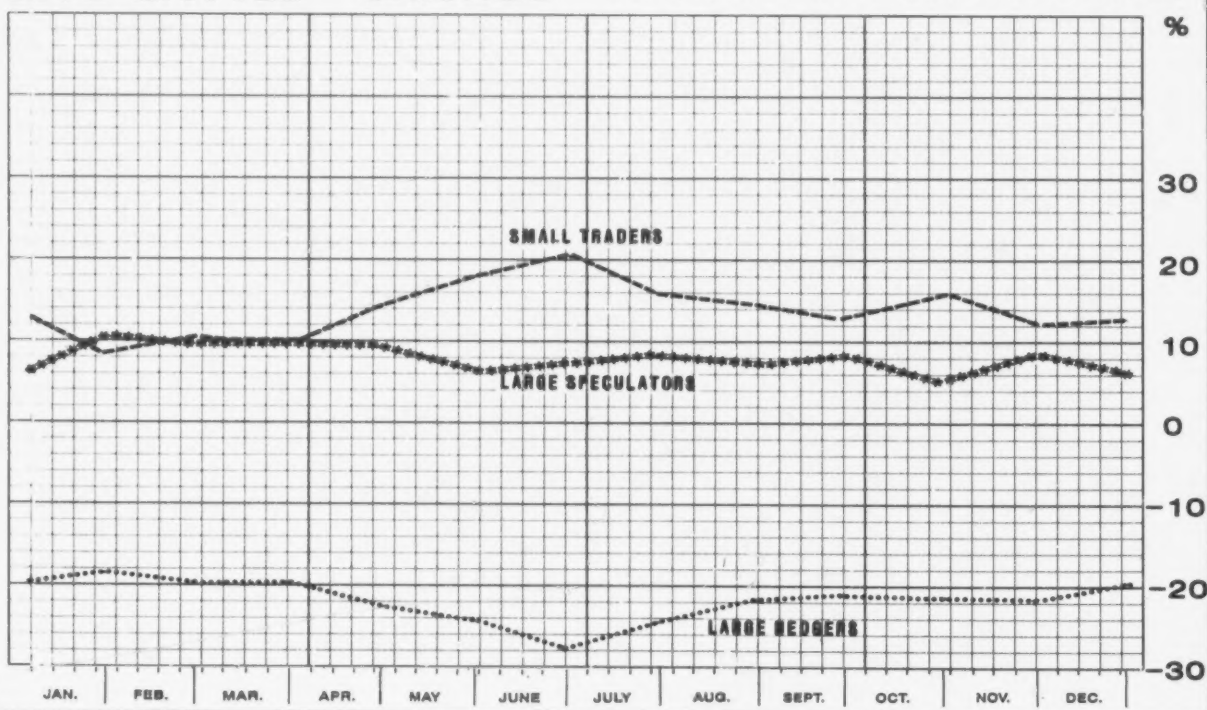
Seasonal Normal Positions for Major Categories of Open Interest



LIVE HOGS CHICAGO (10 YR. AVG. 1978 - 1988 EXCEPT 1982)



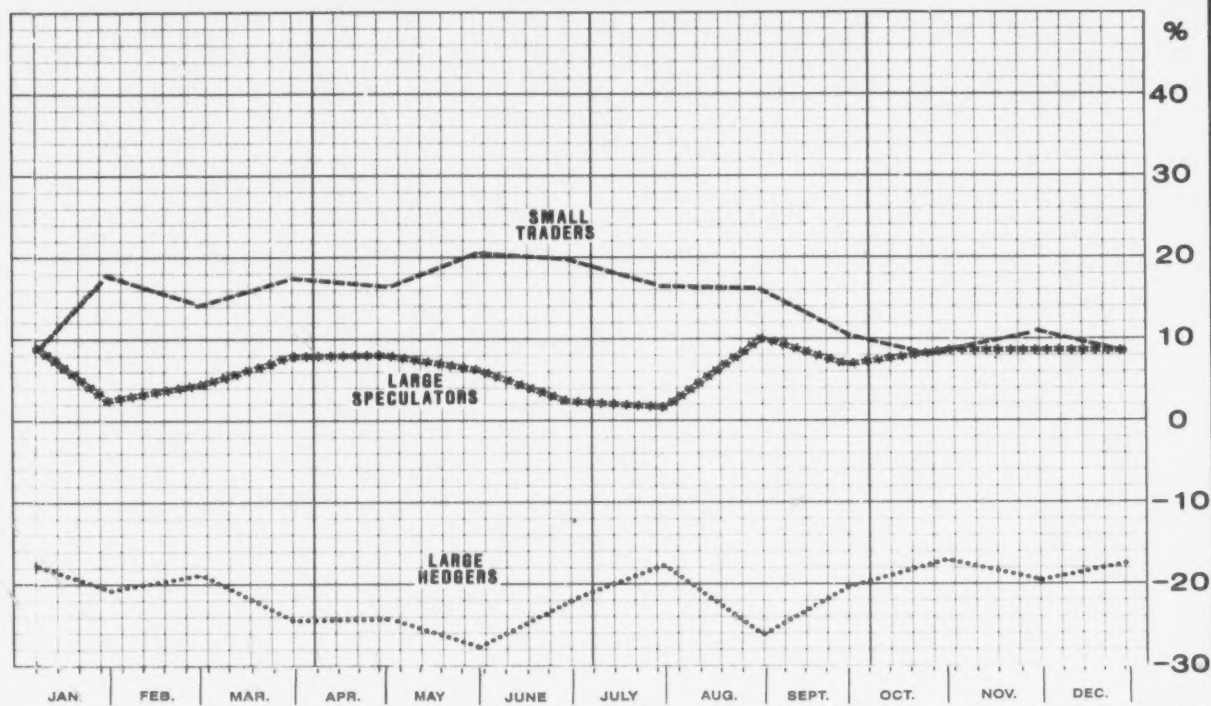
LIVE CATTLE CHICAGO (10 YR. AVG. 1978-1988 EXCEPT 1982)



COFFEE

NEW YORK

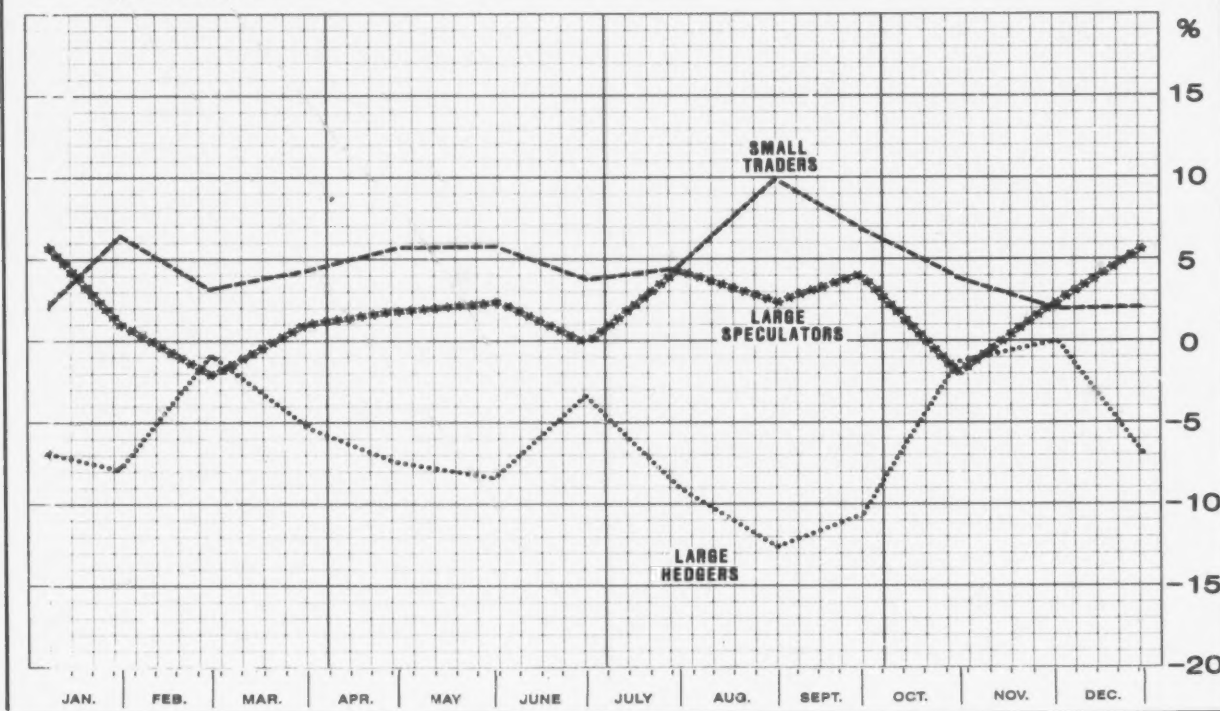
(9 YR. AVG. 1979-88 EXCEPT 1982)



COCOA

NEW YORK

(9 YR. AVG. 1979 - 88 EXCEPT 1982)



FUTURES VOLUME HIGHLIGHTS 1989 in Comparison with 1988

Rank	Contracts With Volume Over 100,000	1989		1988		RANK
		Contracts	%	Contracts	%	
1.	T-Bonds, CBOT	70,303,195	26.29%	70,307,872	28.60%	(1)
2.	Eurodollar, CME	40,818,269	15.27%	21,705,223	8.83%	(2)
3.	Crude Oil, NYMEX	20,534,865	7.68%	18,858,948	7.67%	(3)
4.	S&P 500 Index, CME	10,560,455	3.95%	11,353,898	4.62%	(5)
5.	Gold (100 oz.), COMEX	9,988,577	3.74%	9,496,402	3.86%	(7)
6.	Soybeans, CBOT	9,634,802	3.60%	12,497,096	5.08%	(4)
7.	Corn, CBOT	9,270,784	3.47%	11,105,516	4.52%	(6)
8.	Deutschemark, CME	8,186,221	3.06%	5,662,109	2.30%	(10)
9.	Japanese Yen, CME	7,823,739	2.93%	6,433,132	2.62%	(8)
10.	Sugar #11, CSC	6,243,351	2.33%	5,819,121	2.37%	(9)
11.	T-Notes (6 1/2-10 Year), CBOT	6,109,518	2.28%	5,200,949	2.12%	(14)
12.	Swiss Franc, CME	6,093,885	2.28%	5,283,406	2.15%	(13)
13.	No. 2 Heating Oil, NY, NYMEX	5,740,967	2.15%	4,935,015	2.01%	(15)
14.	Soybean Meal, CBOT	4,486,865	1.68%	5,313,081	2.16%	(12)
15.	Unleaded Regular Gas, NYMEX	4,484,558	1.68%	3,292,055	1.34%	(19)
16.	Silver (5,000 oz.), COMEX	4,376,611	1.64%	4,664,655	1.90%	(17)
17.	Soybean Oil, CBOT	4,300,797	1.61%	4,896,194	1.99%	(16)
18.	Live Cattle, CME	4,265,710	1.60%	5,477,205	2.23%	(11)
19.	Wheat, CBOT	3,237,709	1.21%	3,377,738	1.37%	(18)
20.	British Pound, CME	2,518,232	0.94%	2,616,068	1.06%	(20)
21.	Copper, COMEX	1,929,095	0.72%	2,112,459	0.86%	(21)
22.	Live Hogs, CME	1,891,905	0.71%	2,008,750	0.82%	(22)
23.	T-Notes (5 Year), CROT	1,781,880	0.67%	506,595	0.21%	(38)
24.	Cotton #2, NYCE	1,649,120	0.62%	1,370,249	0.56%	(28)
25.	NYSE Composite Index, NYFE	1,579,704	0.59%	1,668,732	0.68%	(23)
26.	T-Bills (90-Day), CME	1,502,384	0.56%	1,373,553	0.56%	(27)
27.	Soybeans, MIDAM	1,341,983	0.50%	863,934	0.35%	(35)
28.	Cocoa (10 M Tons), CSC	1,341,850	0.50%	1,268,050	0.52%	(31)
29.	Coffee "C", CSC	1,328,953	0.50%	1,149,710	0.47%	(34)
30.	Pork Bellies, CME	1,310,976	0.49%	1,186,599	0.48%	(32)
31.	T-Bonds, MIDAM	1,307,416	0.49%	1,414,390	0.58%	(25)
32.	Canadian Dollar, CME	1,263,664	0.47%	1,408,783	0.57%	(26)
33.	Wheat, KCBOT	1,236,084	0.46%	1,338,711	0.54%	(29)
34.	Platinum, NYMEX	1,190,529	0.45%	1,460,455	0.59%	(24)
35.	MMI Maxi, CBOT	1,086,550	0.41%	1,175,531	0.48%	(33)
36.	Municipal Bond Index, CBOT	1,068,028	0.40%	1,274,316	0.52%	(30)
37.	US Dollar Index, NYCE	743,299	0.28%	446,525	0.18%	(40)
38.	T-Notes (5 Year), NYCE	465,609	0.17%	789,630	0.32%	(36)
39.	Feeder Cattle, CME	465,274	0.17%	702,438	0.29%	(37)
40.	Wheat, MGE	413,073	0.15%	423,542	0.17%	(42)
41.	Corn, MIDAM	389,592	0.15%	429,219	0.17%	(41)
42.	Oats, CBOT	349,836	0.13%	354,578	0.14%	(45)
43.	Wheat, MIDAM	347,127	0.13%	294,236	0.12%	(46)
44.	Orange Juice, (Frozen Conc.), NYCE	304,104	0.11%	358,039	0.15%	(44)
45.	Lumber, CME	273,903	0.10%	371,489	0.15%	(43)
46.	Silver (1,000 oz.), CBOT	254,713	0.10%	481,566	0.20%	(39)
47.	Palladium, NYMEX	208,092	0.08%	139,883	0.06%	(48)
48.	High Grade Copper, COMEX	167,452	0.06%			
49.	T-Notes (2 Year), NYCE	133,423	0.05%			
50.	Cmty Rsrch Bureau Index, NYFE	124,548	0.05%	205,951	0.08%	(47)
51.	Australian Dollar, CME	113,972	0.04%			
52.	Sugar #14, CSC	102,654	0.04%			
Contract with Volume Over 100,000 in 1988 1/						
Contracts with Volume Under 100,000 Contracts		738,366	0.28%	894,359	0.36%	

COMMODITY FUTURES CONTRACTS TRADED 1985 - 1989

	CONTRACT UNIT	1989	1988	1987	1986	1985
Wheat	5,000 bu	3,237,709	3,377,738	1,929,306	2,090,316	2,127,962
Corn	5,000 bu	9,270,784	11,105,516	7,253,212	6,160,298	6,392,812
Oats	5,000 bu	349,836	354,578	291,108	140,952	99,024
Soybeans	5,000 bu	9,634,802	12,497,096	7,378,760	6,133,668	7,392,128
Soybean Oil	60,000 lb	4,300,797	4,896,194	3,912,417	3,182,963	3,647,408
Soybean Meal	100 tons	4,486,865	5,313,081	3,797,970	3,049,005	3,339,268
Silver	5,000 oz	2,397	4,165	12,092		
Silver	1,000 oz	254,713	481,566	509,965	511,239	1,034,830
Gold	100 oz	73,362	84,965	24,893		
Gold	Kilo	27,994	103,335	159,627	124,546	168,527
GNMA Mtgges, CDR	\$100,000			7,583	24,078	84,396
Cash Settle GNMA	\$100,000				7,351	
T-Bonds	\$100,000	70,303,195	70,307,872	66,841,474	52,598,811	40,448,357
T-Notes (6 1/2-10 yr)	\$100,000	6,109,518	5,200,949	5,253,791	4,426,476	2,860,432
T-Notes (5-year)	\$100,000	1,781,880	506,595			
30-Day Interest Rate	\$5,000,000	68,223	19,476			
Corporate Bond Index	\$1,000 x Index		49	10,591		
Mortgage Backed	\$100,000	24,815				
CBOE 250 Index	\$500xCBOE 250	13,945	55,840			
Institutional Index	\$500 x Index			175		
Municipal Bond Index	\$1,000 x Index	1,068,028	1,274,316	1,613,107	906,980	334,691
Major Market Index	\$100 x Index				36,292	2,062,083
MMI Maxi	\$250 x Index	1,086,550	1,175,531	2,630,887	1,738,916	422,091
NASDAQ-100	\$250 x Index				3,743	139,888
CHICAGO BOARD OF TRADE		112,095,413	116,758,862	101,626,958	81,135,634	70,553,897
Live Hogs	30,000#	1,891,905	2,008,750	2,040,478	1,936,864	1,719,861
Pork Bellies, Fzn.	38,000 lb	1,310,976	1,186,599	1,097,010	1,100,339	1,457,386
Live Cattle	40,000#	4,265,710	5,477,205	5,229,294	4,690,538	4,437,327
Feeder Cattle	44,000 lb	465,274	702,438	645,877	411,441	455,881
Lumber	150,000 bd.ft.	273,903	371,489	437,089	502,530	581,548
Gold	100 oz		137	261,639		7
T-Bills (90-day)	\$1,000,000	1,502,384	1,373,553	1,927,006	1,815,162	2,413,338
Domestic CD (90-day)	\$1,000,000			98	3,062	84,106
Eurodollar (3-month)	\$1,000,000	40,818,269	21,705,223	20,416,216	10,824,914	8,900,528
Dollar/Pound Diff	\$1,000,000	9,618				
Dollar/Mark Diff	\$1,000,000	12,598				
Dollar/Yen Diff	\$1,000,000	9,390				
European Currency Unit	125,000			300	43,826	
British Pound	62,500	2,518,232	2,616,068	2,592,177	2,701,330	2,799,024
Canadian Dollar	100,000	1,263,664	1,408,783	914,563	734,071	468,996
Deutschemark	125,000	8,186,221	5,662,109	6,037,048	6,582,145	6,449,384
Japanese Yen	12,500,000	7,823,739	6,433,132	5,358,556	3,969,777	2,415,094
Mexican Peso	1,000,000					12,737
Swiss Franc	125,000	6,093,885	5,283,406	5,268,276	4,998,430	4,758,159
Australian Dollar	100,000	113,972	75,960	53,335		
French Franc	250,000	2,030	3,932	10,437	2,685	9,335
S&P 500 Index	\$500 x Index	10,560,455	11,353,898	19,044,673	19,505,273	15,055,955
S&P 100 Index	\$200 x Index				3,514	1,662
S&P OTC 250	\$500 x Index				5,270	94,919
CHICAGO MERCANTILE EX.		87,122,225	65,662,682	71,334,072	59,831,171	52,115,247

Rice, Rough Old	200,000 lb					9
Rice, Rough New	200,000 lb	50,201	47,627	31,114	3,095	
Cotton Short Staple	50,000 lb				3	1,751
CHIC. RICE & COTTON EX.		50,201	47,627	31,114	3,098	1,760
Coffee "C"	37,500 lb	1,328,953	1,149,710	964,586	1,073,142	650,768
Sugar #11	112,000 lb	6,243,361	5,819,121	3,853,499	3,583,814	3,012,929
Sugar #12	112,000 lb				19,058	99,851
Sugar #14	112,000 lb	102,654	84,999	69,928	72,526	17,433
White Sugar	50 M tons		726	903		
Cocoa	10 M tons	1,341,850	1,268,050	895,465	777,765	800,573
Int'l Market Index	\$250 x Index	496				
CPI-W	\$1,000 x Index			2	8,776	1,324
COFFEE SUGAR & COCOA		9,017,314	8,322,606	5,784,383	5,535,081	4,582,878
Copper	25,000 lb	1,929,095	2,112,459	2,569,178	1,872,209	2,444,552
High Grade Copper	25,000 lb	167,452	924			
Silver	5,000 oz	4,376,611	4,664,655	5,055,652	3,649,687	4,821,206
Gold	100 oz	9,988,577	9,496,402	10,239,805	8,400,175	7,773,834
Aluminum	40,000 lb	741	2,610	8,500	52,627	77,063
Moody's Index	\$500 x MCB			11,482		
COMMODITY EXCHANGE		16,462,476	16,277,050	17,884,617	14,174,698	15,116,655
Wheat (5,000 bu)	5,000 bu	1,236,084	1,338,711	971,095	744,023	735,447
Grain Sorghum	5,000 bu	9,253				
Value Line Index	\$500 x Index	41,268	79,872	505,551	953,985	1,204,659
Mini Value Line	\$100 x Index	8,390	14,171	28,457	18,678	19,032
KANSAS CITY BD. OF TRD.		1,294,995	1,432,754	1,505,103	1,716,686	1,959,138
Wheat	1,000 bu	347,127	294,236	189,610	344,749	347,355
Corn	1,000 bu	389,592	429,219	311,722	406,694	456,661
Oats	1,000 bu	13,317	12,917	5,958	2,169	1,746
Soybeans	1,000 bu	1,341,983	863,934	417,620	680,156	843,231
Soybean Meal Old	20 tons			17	3,231	10,981
Soybean Meal New	20 tons	6,209	8,558	3,191	2,256	
Live Cattle	20,000#	26,750	48,349	44,112	58,752	64,510
Live Hogs	15,000#	33,255	34,230	44,364	80,818	74,388
Silver	1,000 oz				649	4,510
New York Silver	1,000 oz	13,562	12,063	9,578	9,342	57,886
Gold	33.2 oz				0	76
New York Gold	33.2 oz	9,698	14,652	17,957	21,111	31,467
Platinum	25 oz	1,654	2,874	4,342	5,944	1,368
Copper	12,500 lbs			2	892	4,043
Copper New	55,000 lbs			29	1,753	
T-Bonds	\$50,000	1,307,416	1,414,390	1,015,454	467,639	297,033
T-Bills	\$500,000	8,541	22,203	25,592	34,690	36,904
T-Notes	\$100,000	177	4,159			
British Pound	12,500	24,054	28,240	10,979	17,270	21,239
Swiss Franc	62,500	60,949	77,176	97,571	102,019	110,047
Deutschmark	62,500	53,954	49,993	85,009	74,662	85,439
Japanese Yen	6,250,000	59,133	44,257	58,836	47,601	32,912
Canadian Dollar	\$50,000	6,528	9,282	7,749	6,150	3,370
MIDAMERICA COMMODITY EX.		3,703,899	3,370,732	2,350,692	2,368,547	2,485,166

	CONTRACT UNIT	1989	1988	1987	1986	1985
Wheat	5,000 bu	413,073	423,542	310,599	283,900	297,509
White Wheat	5,000 bu	4	380	1,415	686	3,402
High Fructose Corn Syrup	48,000 lb		49	5,963		
Oats	5,000 bu	150	1,807			
MINNEAPOLIS GRAIN EX.		413,227	425,778	317,977	284,586	300,911
Cotton #2	50,000 lb	1,649,120	1,370,249	1,395,980	1,015,392	636,492
Orange Jce, Fzn. Conc.	15,000 lb	304,104	358,039	266,641	211,543	190,758
Propane	100,000 gal			5,799	11,966	13,724
European Currency Unit	\$100,000	16,042	23,936	42,198	72,195	
Five Year Treasury Note	\$100,000	465,609	789,630	383,613		
Two Year Treasury Note	\$200,000	133,423				
U.S. Dollar Index	\$500 x Index	743,299	446,525	403,783	166,494	74,573
NEW YORK COTTON EX.		3,311,597	2,988,379	2,498,014	1,477,590	915,547
NYSE Composite Index	\$500 x Index	1,579,704	1,668,732	2,915,915	3,123,668	2,833,614
Russell 2000	\$500 x Index		32	5,644		
Russell 3000	\$500 x Index			10,734		
T-Bond (30 Year)	\$100,000	34,399				
Comdty Rsrch Bureau Index	\$500 x Index	124,548	205,951	136,832	59,324	
NEW YORK FUTURES EX.		1,738,651	1,874,715	3,069,125	3,182,992	2,833,614
Palladium	100 oz	208,092	139,883	160,284	145,562	133,223
Platinum	50 oz	1,190,529	1,460,455	1,361,546	1,624,635	693,256
Potatoes(Cash Settlement)	100,000 lb			6,240	16,558	16,903
No. 2 Heating Oil, NY	1,000 bbl	5,740,967	4,935,015	4,293,395	3,275,044	2,207,733
Leaded Reg. Gasoline, NY	1,000 bbl				829,733	667,172
Unleaded Gasoline, NY	1,000 bbl	4,484,558	3,292,055	2,056,238	439,352	132,611
Residual Fuel Oil	1,000 bbl	605				
Propane	42,000 gal	14,664	23,749	15,312		
Crude Oil	1,000 bbl	20,534,865	18,858,948	14,581,614	8,313,529	3,980,867
NEW YORK MERCANTILE EX.		32,174,280	28,710,105	22,474,629	14,644,413	7,831,765
TOTAL FUTURES		267,384,278	245,871,290	228,876,684	184,354,496	158,696,578
PERCENT CHANGE		8.75%	7.43%	24.15%	16.17%	6.28%

OPTIONS VOLUME HIGHLIGHTS

1989 IN COMPARISON WITH 1988

RANK	EXCHANGE	CONTRACTS	%	CONTRACTS	%	RANK
1.	Chicago Board of Trade	26,255,904	47.35%	26,279,633	53.48%	(1)
2.	Chicago Mercantile Exchange	17,532,232	31.62%	12,348,986	25.13%	(2)
3.	New York Mercantile Exchange	5,316,183	11.39%	5,606,093	11.41%	(3)
4.	Commodity Exchange	2,590,479	4.67%	2,973,594	6.05%	(4)
5.	Coffee Sugar & Cocoa Exchange	2,200,530	3.97%	1,697,058	3.45%	(5)
6.	New York Cotton Exchange	444,138	0.80%	154,137	0.31%	(6)
7.	New York Futures Exchange	43,028	0.08%	24,311	0.05%	(8)
8.	Kansas City Board of Trade	38,169	0.07%	30,178	0.06%	(7)
9.	MidAmerica Commodity Exchange	23,351	0.04%	21,653	0.04%	(9)
10.	Minneapolis Grain Exchange	2,116	.00%	1,847	.00%	(10)
TOTAL		55,446,130	100.00%	49,137,490	100.00%	

OPTIONS CONTRACTS TRADED 1985 - 1989

OPTION	CONTRACT UNIT	1989	1988	1987	1986	1985
Corn	5,000 bu	1,519,164	1,591,223	661,519	575,634	363,549
Soybeans	5,000 bu	1,975,440	3,245,134	1,242,072	775,139	840,786
Wheat	5,000 bu	484,952	445,575	124,598	9,314	
Silver	1,000 oz	8,346	8,303	10,009	3,081	10,820
T-Bonds	\$100,000	20,784,019	19,509,425	21,720,402	17,314,349	11,901,116
T-Notes	\$100,000	1,168,196	1,011,626	1,421,852	1,000,682	177,292
Mortgage Backed	\$100,000	13,564				
Muni Bonds	\$1,000 x Index	88,591	171,788	118,632		
Soybean Oil	60,000 lbs	101,158	124,131	85,735		
Soybean Meal	100 tons	112,474	172,428	81,213		
CHICAGO BOARD OF TRADE		26,255,904	26,279,633	25,466,032	19,678,199	13,293,563
Live Hogs	30,000#	127,258	130,206	147,859	105,516	57,042
Live Cattle	40,000 #	886,858	1,067,593	1,222,397	718,099	326,724
Pork Bellies	38,000 lbs	53,643	12,143	15,112	1,981	
Feeder Cattle	44,000 lbs	152,483	163,433	134,830		
Lumber	150,000 bd.-ft.	17,450	22,171	6,483		
Eurodollar	\$1,000,000	6,001,522	2,599,839	2,569,957	1,757,426	743,080
British Pound	62,500	405,993	543,380	569,062	496,591	329,071
Deutschemark	125,000	3,795,135	2,734,079	3,125,687	2,205,579	1,562,438
Swiss Franc	125,000	1,488,682	1,069,798	1,053,323	817,897	324,806
Japanese Yen	12,500,000	3,127,247	2,944,889	2,250,813	864,586	
Canadian Dollar	100,000	274,362	313,901	48,690	26,465	
Australian Dollar	100,000	23,257	6,811			
T-Bill	\$1,000,000	16,713	5,916	11,634	63,768	
S&P 500	\$500 x Index	1,161,629	734,827	1,877,295	1,886,445	1,090,068
CHICAGO MERCANTILE EXCH		17,532,232	12,348,986	13,033,142	8,944,353	4,433,229
Sugar	112,000 lbs	1,932,752	1,536,345	432,927	254,491	91,400
Coffee	37,500 lbs	114,216	65,204	25,639	5,319	
Cocoa	10 M tons	153,562	95,509	13,910	999	
COFFEE SUGAR & COCOA EXCH		2,200,530	1,697,058	472,476	260,809	91,400
Gold	100 oz	1,603,799	1,698,696	2,080,067	1,646,791	1,395,896
Silver	5,000 oz	752,645	872,106	918,064	579,425	531,315
High Grade Copper	25,000 lbs	12,310	2			
Copper	25,000 lbs	221,725	402,790	612,850	127,501	
COMMODITY EXCHANGE		2,590,479	2,973,594	3,610,981	2,353,717	1,927,211
Wheat	5,000 bu	38,169	30,178	33,228	18,302	16,856
Value Line Index	\$500 x Index					
KANSAS CITY BOARD OF TRADE		38,169	30,178	33,228	18,302	16,856
Soybeans	1,000 bu	20,019	21,043	12,317	6,635	8,790
Soft Red Winter Wheat	5,000 bu	1,672	533	530	7,492	6,076
Gold	33.2 oz	1,660	77	74	91	678
MIDAMERICA COMMODITY EXCH		23,351	21,653	12,921	14,218	15,544
American Spring Wheat	5,000 bu	2,104	1,847	1,229	3,259	5,414
European Spring Wheat	5,000 bu	12				
MINNEAPOLIS GRAIN EXCHANGE		2,116	1,847	1,229	3,259	5,414
Cotton	50,000 lbs	424,841	124,260	73,480	60,507	29,218
Orange Juice, Fzn. Conc.	15,000 lbs	13,175	5,873	685	3,354	435
Five Year U.S. T-Note	\$100,000	1,278	13,479			
U.S. Dollar Index	\$500 x Index	4,844	10,525	14,538	198	
NEW YORK COTTON EXCHANGE		444,138	154,137	88,703	64,059	29,653
NYSE Composite Index	\$500 x Index	39,482	23,304	206,631	296,303	195,634
CRB Index	\$500 x Index	3,546	1,007			
NEW YORK FUTURES EXCHANGE		43,028	24,311	206,631	296,303	195,634
Heating Oil	42,000 gal	298,136	125,812	143,605		
Crude Oil	1,000 bbl	5,685,953	5,480,281	3,117,037	135,266	
Unleaded Gasoline	1,000 bbl	332,094				
NEW YORK MERCANTILE EXCHANGE		6,316,183	5,606,093	3,260,642	135,266	0
TOTAL OPTIONS		55,446,130	49,137,490	46,185,985	31,770,613	20,044,744
PERCENT CHANGE		12.84%	6.39%	45.37%	58.50%	101.90%
SOURCE: FUTURES INDUSTRY ASSOCIATION						

Alcohol

Salient Statistics of Alcohol in the United States In Millions of Gallons³

Year	Ethyl Alcohol & Spirits		Production	Denatured Alcohol ²		Stocks Dec. 31	Production of Methanol (Synthetic) (ths. tonnes) ⁶
	Production ⁵	Stocks Dec. 31		Total	For Fuel Use		
1976	498.8	85.3	225.3	225.6	—	3.2	940.1
1977	498.3	71.4	223.8	224.6	—	2.6	971.8
1978	506.7	71.2	227.7	228.8	—	2.7	970.4
1979	570.3	53.6	260.7	260.9	—	4.1	1,109.5
1980	643.2	72.0	301.2	281.5	14.5	10.1	1,077.3
1981	571.2	83.3	230.7	227.1	5.7	5.4	1,291.7
1982	601.1	95.0	284.9	277.9	41.9	6.6	1,137.7
1983	698.5	78.6	354.4	356.7	65.8	6.6	1,202.1
1984	631.3	150.6	416.9	410.5	116.7	24.5	1,232.8
1985	681.0	46.9	512.2	513.8	222.9	26.5	753.5
1986	645.4	47.5	408.6	444.6	226.7	23.8	1,085.1
1987	730.3	43.4	442.5	460.8	208.3	9.7	3,418 ⁶
1988 ¹	777.2	39.7	462.5	469.1	216.0	9.2	3,693
1989 ⁴	895	45	490	489	180	8	3,430

¹ Preliminary. ² At denaturing plants. ³ Ethyl alcohol in proof gallons; denatured alcohol in wine gallons. ⁴ Estimate. ⁵ Represents alcohol and spirits of 190° of proof and over. ⁶ Prior to 1987 data in millions of gallons. Source: Alcohol and Tobacco Division T.1

U.S. Production of Ethyl Alcohol¹ & Spirits In Millions of Tax Gallons²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1976	41.6	36.2	44.0	39.3	36.0	37.0	45.5	46.0	43.3	39.3	42.8	47.7	498.8
1977	36.5	37.7	42.8	39.2	43.5	43.2	40.3	40.9	41.0	44.7	48.9	39.7	498.3
1978	35.8	41.1	50.4	42.2	31.3	48.7	42.5	45.4	50.5	40.3	38.0	40.7	506.7
1979	42.8	41.3	49.3	47.3	42.9	48.2	43.8	46.0	53.7	49.4	51.0	54.6	570.3
1980	57.4	52.7	55.3	55.2	54.2	45.7	52.8	46.4	57.3	64.6	47.9	53.7	643.2
1981	49.2	44.3	49.3	51.0	44.0	42.2	45.1	55.8	53.1	44.0	47.8	45.4	571.2
1982	42.9	39.8	48.2	37.6	41.9	52.6	51.9	44.3	53.3	61.9	61.7	65.0	601.1
1983	60.9	58.6	59.4	46.1	56.6	60.2	63.8	56.9	59.2	55.6	53.9	47.2	698.5
1984	49.3	45.9	54.1	58.2	50.9	49.7	48.4	48.4	51.8	60.5	50.4	63.7	631.3
1985	63.3	44.8	60.6	55.6	56.3	63.7	58.5	55.5	59.4	64.1	51.8	47.1	681.0
1986	45.6	51.5	56.5	52.5	55.6	50.1	48.9	50.2	56.7	62.2	54.2	60.8	645.4
1987 ³	62.2	54.9	55.8	60.2	62.0	56.6	60.1	63.4	63.8	63.0	60.6	66.9	730.3
1988 ³	62.6	61.2	64.2	60.7	69.8	61.2	65.9	62.8	61.2	69.7	69.7	67.8	777.2
1989 ³	82.2	69.8	68.9	68.6	79.3	76.1	77.6						

¹ At industrial alcohol plants. ² A "tax gallon" is the alcoholic equivalent of a U.S. gallon at 60 degrees Fahrenheit, containing 50% of ethyl alcohol by volume. ³ Preliminary. Source: Internal Revenue Service T.3

Average Wholesale Price Index of Ethyl Alcohol, in N.Y. 1982 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1976	217.2	230.2	233.0	233.6	233.0	233.0	233.0	232.5	233.0	233.0	232.3	233.0	231.4
1977	231.6	233.0	232.3	232.3	232.3	233.0	238.8	244.9	243.6	243.1	242.5	243.9	237.6
1978	243.9	231.0	230.3	226.4	226.4	225.8	226.4	226.6	226.4	218.8	226.4	226.5	227.9
1979	234.8	239.2	239.2	243.6	248.1	249.4	260.1	265.4	277.6	284.3	291.5	292.2	260.5
1980	311.7	319.6	325.0	338.4	361.4	369.4	370.3	369.2	369.2	369.3	369.2	369.2	353.9
1981	369.2	369.2	370.3	370.3	368.5	368.5	387.3	387.3	387.3	396.8	392.0	383.3	379.2
1982	382.2	353.5	349.6	346.4	N.A.	338.7	341.1	345.2	336.6	335.5	335.9	N.A.	346.5
1983	336.4	335.2	334.4	333.3	333.2	333.2	337.2	337.1	337.0	337.0	340.4	340.4	336.2
1984	341.1	340.5	340.5	339.7	339.9	340.0	346.9	344.0	341.7	341.0	342.4	342.4	341.7
1985	339.3	334.2	326.2	326.0	326.0	326.0	325.7	328.1	327.3	324.6	325.3	324.9	327.8
1986	323.8	261.5	317.3	316.6	316.3	315.7	315.3	313.5	313.7	312.0	311.9	311.6	310.8
1987 ¹	90.3	89.8	90.1	89.2	89.2	89.7	N.A.	91.7	90.4	91.5	91.8	91.0	90.4
1988	91.4	83.8	83.3	85.7	88.0	87.7	90.4	88.9	86.6	90.0	96.9	96.0	89.1
1989	99.3						Not Available						

¹ Data prior to 1987 are on Dec. 1973 = 100 base. Source: Bureau of Labor Statistics (0614-0341)

T.2

Aluminum

The aluminum industry suffered through the beginning of the 1980s with shrinking margins, epidemic plant closings, and slack demand. However, the end of the decade was a tonic for ailing balance sheets.

While the late 1980s were the best of times for the aluminum industry, the question in 1989 was, "Are the worst of times coming?" Higher prices in 1988 brought additional production, as idle potlines heated up again. And this eventually reduced ingot prices from their 1988 highs.

The monthly average spot price of aluminum in January 1989 was already down to \$1.08 a pound, off from 1988's peak of just above \$1.26. Futures on the London Metal Exchange (LME) were in a rare backwardation pattern, with the nearby month trading at higher prices than the distant positions, which is symptomatic of an undersupplied market.

By the end of 1989, prices were down to 76 cents a pound, and while the market remained in backwardation, inventories were above 1988's peak of 2 million tonnes and were climbing monthly.

For the first ten months of 1989, U.S. primary aluminum production was 3.36 million tonnes, compared with 3.94 million in full-year 1988. Industry analysts projected that 1989's total production would surpass 1988's.

During 1989, production slowed at a few facilities, due to alumina supply problems and marketing reassessments. The industry was general-

ly free of labor problems during the year, though Noranda Aluminum Inc. was a notable exception.

There were 23 primary aluminum smelters operating in 1989, the same as in 1988, and they accounted for more than 95 percent of final production.

With more production facilities helping to supply the market, prices declined, but the descent was likely to be arrested by continued strong global demand.

For 1989's first nine months, U.S. imports of aluminum for consumption totaled 1.02 million tonnes, compared with 1.42 million in full-year 1988. U.S. exports during Jan.-Sept. 1989 were 1.16 million tonnes. Exports were expected to expand, due to the soft U.S. dollar.

Domestic bauxite resources are inadequate to meet domestic aluminum requirements. However, the world reserve base for bauxite is sufficient to meet demand for aluminum well into the next century. While there are large resources of nonbauxitic aluminum, no process for using these resources in an economically competitive fashion exists.

Futures Markets

Aluminum futures are traded on the New York Commodity Exchange (COMEX) and the London Metal Exchange (LME).

World Production of Primary Aluminum In Thousands of Metric Tons

Year	Australia	Austria	Canada	China	France	West Germany	Hungary	Italy	Japan	Norway	Spain	Switzerland	Brazil	United Kingdom	United States	USSR	World Total
1983	478	94	1,091	400	361	743	74	196	256	713	358	76	401	253	3,353	2,000	13,904
1984	758	96	1,227	400	342	777	74	230	287	765	381	79	455	288	4,099	2,100	15,714
1985	851	94	1,282	410	293	745	74	221	227	712	370	73	549	275	3,500	2,200	15,367
1986	882	93	1,364	410	322	765	74	243	140	712	350	80	758	276	3,037	2,300	15,341
1987 ¹	1,004	93	1,530	410	300	730	74	240	41	725	350	80	840	297	3,343	2,400	16,016
1988 ²	1,150		1,535	410						840					3,944	2,400	17,304
1989 ²	1,200		1,600							850					4,000	2,450	18,000

¹ Preliminary. ² Estimate. Source: Bureau of Mines

T.4

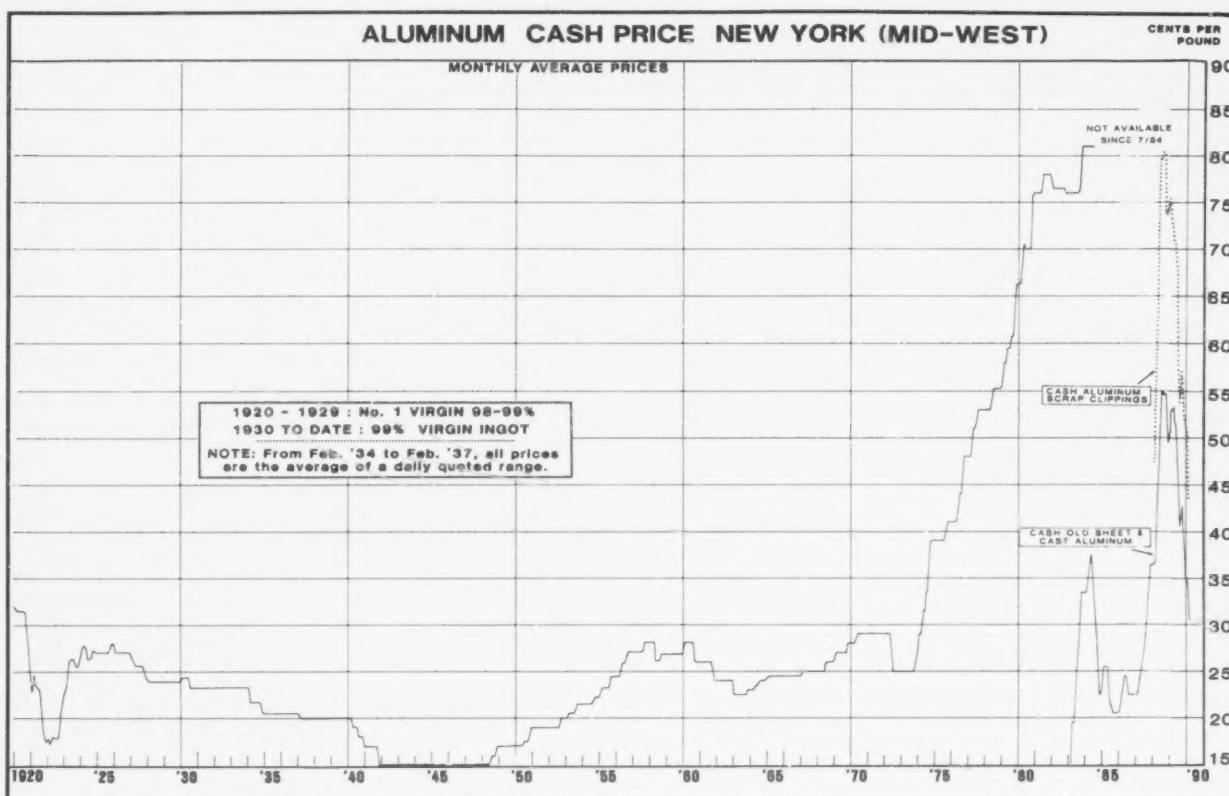
U.S. Production of Primary Aluminum (Domestic & Foreign Ores) In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total ¹
1983	253	223	248	245	265	261	284	297	299	320	318	340	3,353
1984	342	324	350	348	365	351	349	344	329	338	325	334	4,099
1985	329	289	312	295	304	288	292	289	280	285	265	271	3,499
1986	273	251	281	275	284	241	231	235	231	243	239	252	3,036
1987 ²	262	238	266	263	271	272	282	286	286	301	301	316	3,343
1988 ²	320	304	330	324	336	323	334	333	327	339	332	344	3,944
1989 ²	346	312	347	334	347	335	346	341	323	327			

¹ Final annual totals. ² Preliminary. Source: Bureau of Mines

T.9

ALUMINUM



Salient Statistics of Aluminum in the U.S. In Thousands of Metric Tons

Year	Net Import Reliance as a % of Apparent Consumption	Production		Primary Shipments ¹	Recovery from Scrap		Appar- ent Con- sumption	Wrought Pots			All	Net Shipments ⁵ by Producers				Total All Net Ship- ments
		Primary	Second- ary		Old	New		Plate, Sheet, Foil	Rolled Struc- tural Shapes ²	Ex- truded Shapes ³		Perma- nent Mold	Die	Sand	All	
1981	7	4,489	1,394	5,644	758	1,031	4,614	3,097	472	1,079	4,689	132	524	108	826	5,515
1982	7	3,274	1,466	5,090	782	884	4,370	2,749	391	871	4,094	108	480	81	728	4,823
1983	17	3,353	1,564	5,857	820	953	5,035	3,249	423	1,038	4,798	137	592	76	861	5,659
1984	7	4,099	1,760	6,552	825	935	5,279	3,259	451	1,182	5,003	161	679	90	990	5,994
1985	16	3,500	1,762	6,382	850	912	5,174	3,291	357	1,267	5,031	168	698	93	1,011	6,042
1986	26	3,037	1,773	6,545	784	989	5,143	3,397	337	1,335	5,179	155	749	77	1,032	6,211
1987 ⁴	23	3,343	1,986	6,813	852	1,134	5,469	3,740	346	1,351	5,549	—	N.A.	—	949	6,498
1988 ⁶	7	3,944	2,122		1,045	1,077	5,352									
1989 ⁶		4,000			1,100		5,100									

¹ To Domestic Industry. ² Also rod, bar & wire. ³ Also rod, bar, tube, blooms & tubing. ⁴ Preliminary. ⁵ Consists of total shipments less shipments to other mills for further fabrication. ⁶ Estimate. ⁷ Net exports. Source: U.S. Bureau of Mines T.8

U.S. Supply and Distribution of Aluminum In Thousands of Metric Tons

Year	Appar- ent Con- sumption	Production		Imports	Exports	Inventories (Dec. 31)		Year	Appar- ent Con- sumption	Production		Imports	Exports	Inventories (Dec. 31)	
		Primary	From Old Scrap			Private	Gov- ernment			Primary	From Old Scrap			Private	Gov- ernment
1982	4,370	3,274	782	878	748	2,812	2	1986	5,143	3,037	784	1,967	753	2,235	2
1983	5,035	3,353	820	1,091	776	2,265	2	1987 ¹	5,469	3,343	852	1,850	917	1,894	2
1984	5,279	4,099	825	1,477	734	2,653	2	1988 ²	5,352	3,944	1,045	1,420	1,247	1,905	2
1985	5,174	3,500	850	1,420	908	2,343	2	1989 ²	5,100	4,000	1,100	1,550	1,500	1,800	2

¹ Preliminary ² Estimate Source: U.S. Bureau of Mines

T.8A

ALUMINUM

High, Low & Closing Prices of December Aluminum Futures in New York In Cents Per Pound

Year of Delivery	Yr. Prior to Delivery		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Life of Delivery Range
	Nov.	Dec.													
1987 High	51.90	52.00	54.20	58.00	58.20	62.00	67.00	70.90	77.10	80.00	84.00	86.00	81.00	89.00	89.00
Low	50.45	50.45	52.00	53.95	55.60	57.15	61.80	65.00	68.50	74.00	72.50	75.50	76.00	77.50	50.45
Close	50.75	52.00	53.80	57.25	57.15	62.00	66.20	68.45	77.10	75.50	82.50	79.75	77.00	88.00	—
1988 High	74.25	80.00	81.25	81.00	90.50	91.00	94.00	111.00	115.00	117.25	113.75	107.00	105.50	105.00	117.25
Low	68.10	71.50	73.75	74.00	78.00	79.50	79.50	95.00	105.00	109.00	98.00	96.00	99.00	98.50	54.60
Close	70.15	79.00	73.75	80.50	90.50	79.50	94.00	107.50	114.50	114.25	100.00	104.50	101.00	105.00	—
1989 High	—	98.50	101.00	94.00	—	93.00	95.50	83.00	80.50	83.00	81.00	80.50	77.00	75.00	101.00
Low	—	89.00	96.00	92.00	—	81.00	87.00	80.00	74.00	78.00	74.50	77.00	74.50	71.00	71.00
Close	—	97.00	96.50	94.00	—	91.00	87.00	80.50	79.00	81.00	78.00	77.00	75.00	73.00	—

Source: Commodity Exchange, Inc. (Comex)—N.Y.

T.11A

Month-End Open Interest of Aluminum Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1987	828	722	985	883	754	661	542	521	554	441	394	270
1988	293	267	327	320	229	278	204	218	182	166	159	152
1989	168	179	145	155	122	100	90	92	92	96	63	45

Source: Commodity Exchange, Inc. (Comex)—N.Y.

T.11B

Volume of Trading of Aluminum Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1987	1,688	1,688	1,431	640	895	745	408	390	527	319	268	222	8,500
1988	277	390	476	239	360	402	136	43	93	91	48	55	2,610
1989	93	82	137	39	101	57	33	79	15	6	62	37	741

Source: Commodity Exchange, Inc. (Comex)—N.Y.

T.11C



ALUMINUM

Average Price of Cast Aluminum Scrap (Crank Cases) in Chicago Area¹ In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	15.12	17.50	19.50	19.50	23.50	25.50	27.65	31.80	33.50	33.50	33.50	33.50	26.17
1984	34.83	35.50	36.59	37.50	35.64	32.98	30.50	29.11	25.55	23.07	22.50	23.67	30.62
1985	25.50	25.50	25.50	25.50	23.23	21.50	21.40	20.50	20.50	20.50	20.50	22.55	22.55
1986	21.23	22.50	23.60	24.50	24.50	23.36	22.50	22.50	22.50	22.50	22.50	22.50	22.89
1987 ¹	25.75	27.56	30.00	31.64	33.10	34.82	36.20	40.24	41.55	43.68	41.87	42.82	35.77
1988	45.50	47.40	52.67	55.64	53.93	55.00	54.65	54.85	54.69	50.64	49.50	50.50	52.08
1989	53.02	52.97	53.41	51.90	51.14	47.59	42.97	40.63	43.30	40.14	37.75	35.65	45.87

¹ Dealer buying prices—prior to May 1987 prices are for the N.Y. area. Source: American Metal Market

T.12

Aluminum Products (Ingot & Mill Products) Shipments¹ in the U.S. In Million Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	862	946	1,074	1,014	972	1,127	881	1,114	1,016	980	959	1,099	12,039
1983	971	972	1,185	1,054	1,224	1,205	1,077	1,212	1,202	1,103	1,141	1,275	13,622
1984	1,107	1,268	1,388	1,133	1,301	1,293	1,115	1,244	1,139	1,304	1,153	1,210	14,655
1985	1,166	1,137	1,291	1,228	1,304	1,208	1,199	1,228	1,264	1,278	1,123	1,032	14,456
1986	1,187	1,176	1,401	1,340	1,390	1,202	1,114	1,131	1,116	1,219	1,042	1,062	14,386
1987 ²	1,182	1,253	1,347	1,398	1,301	1,433	1,346	1,261	1,334	1,307	1,219	1,353	15,584
1988 ²	1,165	1,163	1,398	1,246	1,313	1,416	1,214	1,357	1,334	1,293	1,322	1,155	15,453
1989 ²	1,266	1,232	1,419	1,246	1,343	1,399	1,251	1,386	1,330				

¹ Mill products & pig & ingot (net shipments). ² Preliminary. Source: Bureau of the Census

T.10

U.S. Aluminum Inventories, Total (Ingot, Mill Prod. & Scrap) In Million Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1982	6,607	6,644	6,722	6,639	6,665	6,664	6,557	6,607	6,490	6,415	6,412	6,373
1983	6,180	6,140	6,075	5,870	5,723	5,558	5,418	5,451	5,353	5,236	5,273	5,191
1984	4,994	5,200	5,225	5,295	5,435	5,579	5,618	5,775	5,794	5,881	5,889	5,922
1985	5,850	5,900	5,824	5,796	5,749	5,712	5,595	5,579	5,512	5,439	5,324	5,241
1986	5,165	5,165	5,158	5,153	5,197	5,044	5,044	5,083	5,057	4,977	4,927	4,902
1987 ¹	4,928	4,868	4,784	4,702	4,584	4,515	4,474	4,393	4,303	4,152	4,211	4,245
1988 ¹	4,175	4,344	4,401	4,388	4,423	4,388	4,215	4,235	4,175	4,175	4,134	4,119
1989 ¹	4,151	4,189	4,163	4,160	4,246	4,262	4,275	4,474	4,325	4,182		

¹ Preliminary. Source: Bureau of Mines

T.5

Aluminum Exports (Metal & Alloys, Crude) from the U.S. In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	22.1	13.8	46.0	26.6	19.9	48.5	24.2	42.6	23.6	59.5	42.1	27.3	401.2
1983	50.9	12.2	14.0	46.4	8.2	14.9	37.1	33.2	44.5	27.4	50.8	24.1	360.7
1984	24.5	20.1	19.9	7.6	23.4	24.0	22.1	37.5	23.9	17.9	32.9	32.3	286.2
1985	43.9	34.6	24.9	31.0	32.8	58.8	41.8	28.5	29.6	21.4	20.5	13.1	383.0
1986	24.1	28.1	20.0	14.1	18.7	12.6	12.1	17.2	18.0	21.2	19.1	23.5	228.6
1987	17.0	26.3	23.5	26.0	16.8	16.1	29.0	30.6	30.7	22.7	32.1	39.1	281.1
1988	20.3	15.1	21.8	23.0	38.0	43.3	41.6	44.2	39.0	25.7	47.5	51.3	400.1
1989	34.8	41.8	40.2	33.3	34.1	44.6	46.2	52.0					

Source: Bureau of the Census

T.7

Aluminum General Imports (Metal & Alloys, Crude) into the U.S. In Thousands of Metric Tons¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	38.5	65.9	61.7	61.0	51.0	66.5	42.2	78.2	52.8	52.7	60.1	47.8	679.4
1983	48.2	42.6	33.2	66.9	84.6	82.9	72.1	65.7	56.6	58.2	63.6	40.3	714.9
1984	70.9	94.9	114.3	68.8	108.8	73.9	66.8	68.0	89.9	93.0	68.6	57.4	975.3
1985	75.6	62.7	88.9	73.2	80.4	84.8	75.9	80.4	103.4	95.0	76.7	64.0	960.9
1986	90.5	110.9	140.9	144.4	167.3	137.0	131.2	136.1	106.1	118.3	100.4	85.2	1,468.4
1987	126.0	124.6	111.1	106.3	114.9	133.6	120.6	106.1	105.3	124.2	103.6	101.6	1,250.1
1988	111.6	101.4	115.6	98.1	101.5	80.5	79.5	80.0	92.4	81.9	82.0	55.0	1,030.6
1989	99.4	78.6	83.3	92.4	75.5	73.9	71.8	91.9					

¹ Data prior to 1983 are in thousands of short tons. Source: Bureau of the Census

T.6

Antimony

Antimony compounds are used as stabilizers to retard light and heat degradation in plastics. They are also used: to flameproof plastics, textiles, and other combustibles; and as decolorizing and refining agents in optical glass and other special glass products. Antimony-lead alloys are used in lead-acid storage batteries.

World mine antimony production was estimated at 82,800 tonnes in 1989, up 17 percent from 1988. Bolivia, China, and South Africa are among the largest producing nations.

U.S. mine output is negligible, consisting of small amounts of by-products from silver, copper, and lead ores. U.S. antimony production from domestic source materials is largely from recycling of lead-antimony batteries. Such secondary output was estimated at 17,000 tonnes in 1989, up from 16,172

in 1988. Primary antimony metal and oxide were produced at nine U.S. plants that rely on imported ores and concentrates, including one facility, originally in Cleveland, that was disassembled in 1988 and shipped to the new owner's smelter in Texas to process concentrates from Mexico.

In the U.S., primary antimony was consumed at about 250 plants, located east of the Mississippi River and accounting for about 90 percent of reported primary consumption. The principal uses of primary antimony in 1989 were: flame retardants, 70 percent; transportation, including batteries, 10 percent; chemicals, 10 percent; ceramics and glass, 4 percent; and other, 6 percent. Most of the secondary antimony was recovered as antimonial lead, which went right back into replacements for the batteries it was recycled from.

World Mine Production of Antimony (Content of Ore) In Short Tons

Year	Australia	Bolivia	Austria	China ¹	Czechoslovakia	Italy	Mexico ²	Morocco	Peru ⁵	Turkey	South Africa	United States	USSR	Yugoslavia ⁴	World Total ¹
1986	991	11,291	566	16,500	1,000	336	3,678	680	740	1,039	7,513	N.A.	10,500	1,380	64,146
1987 ³	1,100	9,000	580	16,500	1,100	330	3,300	720	720	1,104	7,500	—	10,600	1,390	61,875
1988 ³		9,943					2,304				6,895	N.A.		653	70,938
1989 ³		11,500					2,500				7,500	N.A.		900	82,800

¹ Estimate. ² Includes antimony content of miscellaneous smelter products. ³ Preliminary. ⁴ Metal. ⁵ Recoverable.
Source: Bureau of Mines

T.13

Salient Statistics of Antimony in the United States In Short Tons

Year	Net Import Reliance as a % of Apparent Consumption	Ship- ments of Mine	Production		Sec- ondary (Alloys) ²	Imports ⁵		Metal Gross Weight	Ex- ports ³	Ores & Concen- trates	Industry Stocks, Dec. 31 ²				Total ⁶
			Primary ²	— Smelter		Ore Gross Weight	Sb Content				Metallic	Oxide	Sulfide	Resi- dues & Slag	
1986	64	N.A.	N.A.	17,978	15,522	10,833	5,855	7,940	595	1,030	957	4,019	19	106	6,131
1987 ¹	63			20,704	16,647	11,389	5,634	9,701	876	1,265	954	4,499	25	92	6,835
1988 ⁴	65						4,106	18,302			2,824	4,280	24	185	8,844

¹ Preliminary. ² Antimony content. ³ Antimony ore, metal & compounds. ⁴ Estimate. ⁵ Imports for consumption. ⁶ Including primary antimony residues & slag. Source: Bureau of Mines

T.15

Industrial Consumption of Primary Antimony in the United States In Short Tons (Antimony Content)

Year	Metal Products								Non-Metal Products							Grand Total
	Ammunition	Antimonial Lead	Sheet & Pipe	Bearing Metal & Bearings	Cable Covering	Solder	Type Metal	Total All Metal Products	Flame Retardant	Ammun. primers	Ceramics & Glass	Rubber Pdt's.	Pigments	Plastics	Total	
1985	410	568	N.A.	177	N.A.	336	31	1,638	7,530	27	1,187	25	147	998	2,529	11,697
1986	N.A.	607	40	153	68	278	9	1,585	6,885	23	1,027	41	250	975	2,482	10,952
1987 ¹	N.A.	732	84	206	N.A.	383	9	2,250	6,184	58	1,237	N.A.	307	827	2,652	11,086

¹ Preliminary. ² Estimated coverage based on 77% of the industry. Source: Bureau of Mines

T.16

Antimony Imported (for Consumption) into the U.S. and Price Ranges

Year	Imported for Consumption							Foreign Metal (Duty Paid Delivery New York)	Antimony Trioxide ¢ Lb.	Metal ²	Domestic (Based on Antimony in Alloy)
	Antimony Ore Value Ths. \$	Needle or Ligated Antimony		Antimony Metal		Antimony Oxide					
		Gross Weight Sh. Tons	Value \$ Ths.	Short Tons	Value \$ Ths.	Short Tons	Value \$ Ths.				
1985	12,381	112	256	5,129	10,983	8,815	20,765	120-147	145-165	131.1	200
1986	5,892	385	596	7,940	15,242	11,221	21,529	105-141	125-150	121.9	200
1987 ¹	5,634	102	112	9,701	18,171	11,325	20,024	105-116	125-135	110.6	200

¹ Preliminary. ² N.Y. Dealer Price, 99.5% to 99.6%, C.I.F. U.S. ports. Source: Bureau of Mines

T.17

Apples

World Production² of Apples, Fresh (Dessert & Cooking) In Thousands of Metric Tons

Crop Year	Argentina	Australia	Canada	France	Hungary	Italy	Japan	Mexico	Netherlands	South Africa	Spain	Turkey	United States ²	West Germany	Yugoslavia	World Total
1976	576	275	409	1,598		2,143	879	329	380	381	1,008		2,936	1,487	483	15,501
1977	820	301	411	1,186		1,828	959	297	315	289	672		3,057	1,176	381	13,934
1978	810	258	452	1,768		1,874	844	313	510	367	1,015		3,446	1,783	381	16,589
1979	972	345	435	1,769		2,023	853	338	450	372	1,097		3,694	1,951	428	16,605
1980	908	345	553	1,802		1,966	960	282	450	450	859		4,005	1,880	483	17,179
1981	804	294	422	1,502		1,773	846	280	260	486	1,008		3,517	773	508	14,099
1982	817	301	478	1,978		2,642	924	394	440	423	891		3,684	2,637	746	18,418
1983	872	267	485	1,575	1,141	2,057	1,048	302	364	513	1,012	1,750	3,800	1,313	557	19,048
1984	922	352	434	2,005	1,088	2,241	812	486	388	557	970	1,900	3,780	1,799	584	20,495
1985	594	291	479	1,793	954	2,012	910	443	270	516	988	1,900	3,594	1,410	368	18,613
1986	1,078	362	386	1,875	1,253	2,020	986	629	400	470	829	1,860	3,598	2,180	637	20,911
1987	940	324	506	1,985	1,064	2,273	998	615	340	526	971	1,680	4,876	1,077	423	20,955
1988-9 ¹	964	344	452	1,926	1,131	2,443	1,042	624	363	490	821	1,800	4,154	2,467	518	22,301
1989-90 ³			450	1,900	1,050	2,080	1,075	525	393		740	1,700	4,367	1,740	600	

¹ Preliminary. ² Commercial crop. ³ Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.18

Salient Statistics of Apples¹ in the United States

Year	Growers Prices										Avg. Farm Price ¢ Per Lb.	Farm Value Million \$	Foreign Trade ⁴				Fresh Per Capita Consumption Lbs.		
	Production		Fresh		Processing		Utilization of Quantities Sold						Domestic Exports		Imports				
	Total	Utilized	Fresh ¢ Lb.	Processing \$ Ton	Processed ⁵								Fresh	Dried ⁵	Fresh & Dried ⁵	Fresh & Dried ⁵			
					Metric Tons														
					Fresh	Canned	Dried	Frozen	Juice & Cider	Other ³									
1976	6,472	6,467	11.50	108.00	3,916	920	229	220	1,109	73	9.10	586.5	123.7	4.6	55.7	17.1			
1977	6,740	6,710	13.80	122.00	3,860	1,076	226	161	1,267	121	10.60	708.6	142.4	8.2	63.6	16.9			
1978	7,597	7,544	13.90	117.00	4,210	1,224	221	207	1,495	186	10.40	781.4	154.8	7.3	78.5	17.5			
1979	8,126	8,101	15.40	114.00	4,289	1,337	256	137	1,954	130	10.90	881.2	237.3	5.5	71.2	17.5			
1980	8,818	8,800	12.10	84.00	4,934	1,202	195	168	2,137	165	8.70	761.3	311.3	7.6	76.8	19.1			
1981	7,740	7,693	15.40	102.00	4,442	1,002	190	173	1,798	87	11.10	851.1	269.2	8.3	128.3	16.8			
1982	8,122	8,110	13.20	118.00	4,537	1,249	210	191	1,808	116	10.00	809.0	261.8	16.1	98.7	17.7			
1983	8,379	8,358	14.80	103.00	4,621	1,204	283	170	1,985	95	10.50	879.0	228.7	12.0	126.0	18.4			
1984	8,333	8,318	15.50	111.00	4,666	1,177	289	198	1,886	102	11.20	927.6	205.2	9.3	132.6	18.7			
1985	7,924	7,836	17.30	103.00	4,228	1,255	242	194	1,842	74	11.70	915.5	147.1	5.5	152.6	17.5			
1986	7,933	7,907	19.10	116.00	4,532	1,179	199	257	1,649	91	13.40	1,058.9	175.1	10.5	149.2	18.3			
1987	10,749	10,452	12.70	79.30	5,632	1,290	284	249	2,925	73	8.70	870.6	— 293.2 —	—	155	21.3			
1988 ²	9,158	9,108	17.20	123.00	5,263	1,399	285	276	1,818	67	12.60	1,148	— 249.2 —	—	135	18.9			
1989 ⁶	9,627					1,250	290	280	2,000	70									

¹ Commercial crop. ² Preliminary. ³ Mostly crushed for vinegar, jam, etc. ⁴ Year beginning July. ⁵ Fresh weight basis. ⁶ Estimate. Source: Statistical Reporting Service, U.S.D.A.

T.19

U.S. Price¹ of Apples Received by Growers (for Fresh Use) In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	13.5	13.9	14.1	13.9	13.9	13.0	16.2	14.9	14.9	13.3	14.2	14.3	14.2
1980	14.1	14.9	16.6	17.0	17.9	21.0	24.6	17.5	15.7	12.5	11.5	10.7	16.2
1981	10.7	12.4	12.1	11.3	10.7	10.5	12.7	14.6	16.0	16.0	16.1	15.7	13.2
1982	14.1	15.7	16.0	14.5	16.2	17.7	15.2	16.4	16.4	14.6	13.9	13.1	15.3
1983	11.1	12.1	12.0	11.1	11.9	10.5	14.6	15.3	16.2	15.2	14.6	13.7	13.2
1984	14.4	15.2	15.3	15.0	15.1	14.7	17.3	18.1	18.5	17.4	16.4	15.1	16.0
1985	14.7	14.3	15.7	15.1	14.1	13.1	12.6	12.3	16.3	15.4	16.4	16.6	14.7
1986	16.7	17.2	17.2	17.2	20.7	21.1	27.3	27.5	20.8	18.0	17.3	16.5	19.8
1987 ¹	18.2	18.9	18.0	19.1	22.4	24.6	25.5	15.2	14.9	12.1	11.4	10.4	17.6
1988 ¹	11.2	13.0	12.6	11.0	10.9	10.4	15.8	24.5	23.7	18.3	17.6	17.4	15.5
1989 ¹	18.1	18.0	16.6	14.4	13.5	10.8	9.8	16.1	19.1	15.9			

¹ Preliminary. Source: Bureau of Labor Statistics (0111-0215.99) Economic Res. Service, U.S.D.A.

T.20

Arsenic

The U.S. has been completely dependent on imports for its arsenic trioxide, since the last U.S. refinery closed in 1985. However, one company in Wyoming produced small amounts of arsenic acid from arsenic recovered from U.S. lead smelter flue dusts in 1989.

World mine production of arsenic trioxide remained well in excess of demand at an estimated 55,000 tonnes, unchanged from 1988, and reflected by-product production from copper, lead, zinc and gold. France, Chile and Sweden are the largest producers. Because of the oversupply of this by-product, arsenic trioxide prices fell by 13 percent in 1989 to an average of 26 cents/lb.

U.S. arsenic trioxide imports rose by about 7 percent in 1989 to 30,000 tonnes. Apparent consumption of arsenic acid was estimated at 24,000 tonnes.

Because of changes in import codes, data on quantities of other arsenic compounds were not available. Apparent consumption of all arsenic-con-

taining compounds was estimated at 22,300 tonnes in 1988. The total value of arsenic and compounds consumed in the U.S. fell to an estimated \$20 million in 1989 from \$30 million a year earlier.

Increased production of wood preservatives, which comprised about 70 percent of U.S. arsenic use, accounted for the bulk of growth in demand in 1989. About 22 percent went into agricultural herbicides and desiccants, and the remainder went into glass and nonferrous alloys. Imports of arsenic metal doubled in 1989 to 1,200 tonnes, of which 750 came from China. Most of the metal went into alloys of lead and copper, but semiconductor materials were an important niche market for highly purified arsenic.

There are no available alternatives to arsenicals as growth regulators for grapefruit and for controlling some grape diseases. But creosote and pentachlorophenol are substitute wood treatments, where odor and paintability are not factors.

World Production of White Arsenic (Arsenic Trioxide) In Metric Tons

Year	Philippines	Bolivia	Belgium	Canada ⁴	Chile	France	West Germany	USSR	Japan	Mexico	Peru	Rep. of Korea	Sweden	Namibia ³	World Total
1979	—	—	—	—	—	5,550	—	7,700	182	6,537	1,415	590	5,080	2,221	29,620
1980	—	81	—	—	—	5,300	360	7,700	284	6,932	2,475	N.A.	6,500	1,288	31,199
1981	—	127	3,000	2,000	—	5,200	360	7,750	95	6,517	2,164	170	6,900	1,370	43,731
1982	—	261	3,000	2,000	—	6,000	360	7,800	100	4,740	1,910	306	9,000	1,895	45,572
1983	—	107	3,000	2,000	—	4,727	360	7,900	300	4,557	1,009	560	9,000	1,126	42,126
1984	—	144	3,000	3,000	3,500	3,828	360	8,000	500	5,496	1,090	N.A.	10,000	2,504	48,402
1985	5,000	361	3,000	3,000	4,000	8,000	360	8,100	500	6,312	1,257	N.A.	10,000	2,471	54,731
1986	5,000	244	3,000	3,000	6,000	10,000	360	8,100	500	7,016	1,210	N.A.	10,000	1,936	56,513
1987 ¹	5,000	130	3,500	3,000	5,000	9,000	360	8,100	500	7,000	1,200	100	10,000	1,800	54,840
1988 ²	5,000	—	3,500	2,000	7,000	10,000	—	8,100	—	4,992	1,500	—	10,000	1,800	55,000
1989 ²	5,000	—	3,500	2,000	7,000	10,000	—	8,000	—	5,000	1,500	—	10,000	2,000	55,000

¹ Preliminary. ² Estimate. ³ Output of Tsumeb Corp. Ltd. only. ⁴ Includes low-grade dusts that were exported to the U.S. for further refining. Source: Bureau of Mines

T.21

Salient Statistics of White Arsenic in the U.S. In Metric⁵ Tons

Year	Tri-oxide (As ₂ O ₃)	Imports For Consumption				Arsenic Comp- ounds	Trioxide Mexican 99.13% As ₂ O ₃ c lb. ³	Value of Im- ports Thous. \$	Trioxide Domes- tic ⁴ 95% As ₂ O ₃ c lb. 12/31	Metal Domes- tic 99% As	Cons- ump- tion ths. tonnes	Imports of Arsenic Trioxide from					Bel- Lux.	Exports (com- pounds) Gross Weight
		Metal- lic Ar- senic	Arsen- ic Acid	Sul- fide	Canada							France	Mexico	South Africa	Sweden			
1977	5,981	357	382	—	1,109	18	1,962	13.1	190	—	22	1,352	3,089	—	1,323			
1978	10,306	369	565	—	473	27	5,918	23¼	190	—	136	5,077	2,603	—	2,281	189		
1979	12,325	405	176	39	1	30	7,728	24¼	190	477	277	3,242	3,125	—	5,014	184	969	
1980	12,528	266	271	11	1	46	9,190	31¾	300	—	486	2,780	3,720	—	4,770	388	1,518	
1981 ⁵	17,199	294	1,511	—	4	78	17,742	40	275	50	5,581	749	3,566	17	4,902	1,251	523	
1982	14,599	136	699	18	362	59	18,205	40	245	16.2	3,352	1,392	2,276	—	4,192	1,030	2,658	
1983	10,186	243	2,385	1,127	26	45	13,920	33	225	13.6	2,525	667	2,531	17	3,430	946	85	
1984	13,985	304	2,506	20	35	42	14,581	33	210	17.3	4,767	1,261	3,115	—	3,914	843	76	
1985	16,472	407	1,993	2	23	42	17,999	33	210	18.1	3,669	3,608	3,399	113	2,996	1,498	158	
1986	25,728	395	1,381	16	10	44	20,851	33	185	21.1	1,924	6,274	4,408	1,210	7,069	1,255	217	
1987 ²	26,843	631	1,054	15	—	44	21,383	—	140	21.8	2,012	5,341	4,457	1,380	4,824	1,643	167	
1988 ¹		600				30				22.3							400	
1989 ¹		1,200				26				24.0								

¹ Estimate. ² Preliminary. ³ F.O.B. Laredo, TX. ⁴ F.O.B. Tacoma, Wash. ⁵ Data prior to 1981 are in short tons. Source: Bureau of Mines

T.22

Barley

World barley production in 1989/90 was projected at 168.9 million tonnes, up slightly from a year earlier. The European Community's output was estimated at 49 million tonnes, down 10 percent from the previous season. The Soviet Union's crop was forecast at 49 million tonnes, up 10 percent. Eastern Europe produced 16.6 million tonnes, while the Canadian crop recovered from drought and reached 12.1 million tonnes.

World barley exports in 1989/90 were placed at 17.6 million tonnes, down 2 percent from the previous season. The EC was the dominant exporter, with 9.5 million tonnes. Canada was expected to export 4 million tonnes, up 14 percent from 1988/89. Australia was likely to ship 11.2 million tonnes, 200,000 less than the previous season.

Saudi Arabia was expected to import 4.5 million tonnes, 2 percent more than the previous season. Soviet imports were forecast at 3.9 million tonnes, up 22 percent. Japan and Eastern Europe were also buyers.

World use of barley was forecast to be 172.8 million tonnes, 2 percent more than the season before. Soviet consumption was put at 52.4 million tonnes, up 5 percent. The EC was projected to consume 41.4 million tonnes, and Eastern Europe 18.5 million tonnes.

Global ending stocks of barley were estimated at 25 million tonnes, down 14 percent from the previous season.

U.S. barley production in 1989/90 was 405 million bushels, up 38 percent. The 1988 crop was hurt by

severe drought, and the 1989 crop was affected by hot, dry conditions. Crops in Minnesota and North Dakota were affected by dryness during July. The national average yield was 46 bushels per acre.

U.S. stocks of barley at the beginning of the season were 197 million bushels, down 39 percent from the previous year. The total barley supply of 616 million bushels was 2 percent less than the season before. Total use was put at 455 million bushels, up 6 percent. Use of barley for feeding was estimated at 190 million bushels, up from 165 million the year before. Food, seed, and industrial use was put at 180 million bushels, the same as the previous season. Exports of barley were estimated at 85 million bushels, also the same.

The major markets for U.S. barley were Saudi Arabia, Israel, Japan, and Eastern European countries. Barley exports have been promoted under USDA's Export Enhancement Program.

U.S. ending stocks of barley were projected at 161 million bushels, 18 percent less than the previous season. About 25 percent of those stocks were held by the Commodity Credit Corporation.

The price support loan rate in 1989 was \$1.28/bu., below \$1.34 the previous season. The acreage reduction requirement was 10 percent, the same as in 1988.

Futures Market

Feed barley futures are traded on the Winnipeg Commodity Exchange.

World Barley Supply and Demand In Millions of Metric Tons

Crop Year	Exports						Imports			Utilization				Stocks ²		
	Australia	Canada	EC-12	Total Non-U.S.	U.S.	Total Ex-ports	U.S.S.R.	Total Imports	Pro-duction	U.S.S.R.	Non-U.S.	U.S.	Total Util-ization	Non-U.S.	U.S.	Total Stocks
1982-83	.6	6.1	3.9	12.5	1.0	13.4	2.2	13.4	166.9	49.5	152.6	8.9	161.5	15.6	4.7	20.3
1983-84	3.6	4.2	3.8	14.5	2.1	16.6	.5	16.6	164.7	49.1	160.7	9.8	170.5	10.5	4.1	14.6
1984-85	4.7	2.4	7.6	16.8	1.2	18.0	4.7	18.0	175.5	45.2	157.8	10.3	168.1	19.1	5.4	24.4
1985-86	3.7	4.8	7.3	17.6	.8	18.4	2.9	18.4	178.0	48.6	161.8	10.9	172.7	22.6	7.1	29.7
1986-87	2.2	6.0	6.2	15.6	3.0	18.5	3.0	18.5	182.4	56.6	167.9	10.3	178.1	26.7	7.3	34.0
1987-88	1.6	3.5	7.0	13.2	2.9	16.1	2.4	16.1	180.5	60.9	173.1	9.2	182.3	25.2	7.0	32.2
1988-89 ¹	1.4	3.4	9.3	15.5	1.7	17.2	3.2	17.2	166.6	48.2	162.2	7.4	169.7	24.8	4.3	29.1
1989-90 ³	1.7	4.0	9.5	16.2	2.0	18.2	3.9	18.2	169.7	52.9	167.1	7.7	174.8	20.5	3.5	24.0

¹ Preliminary. ² End of crop year season. ³ Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.29A

World Production of Barley In Thousands of Metric Tons

Crop Years	China	United States	Australia	Canada	Rep. of Korea	Denmark	Morocco	France	India	Japan	USSR	West Germany	Spain	Turkey	United Kingdom	World Total
1982-3	7,000	11,233	1,939	13,966	749	6,357	2,334	10,036	1,993	390	41,000	9,460	5,269	6,400	10,954	166,900
1983-4	6,800	11,081	4,890	10,209	815	4,423	1,228	8,759	1,867	380	50,000	8,944	6,662	5,425	9,980	164,700
1984-5	7,300	13,046	5,554	10,279	804	6,072	1,405	11,699	1,834	396	41,800	10,284	10,000	6,000	11,055	175,500
1985-6	6,200	12,876	4,868	12,387	571	5,251	2,225	11,470	1,556	378	46,500	9,690	9,980	5,800	9,740	178,000
1986-7	5,600	13,293	3,611	14,634	453	5,134	2,966	9,950	1,962	344	53,900	9,377	7,331	6,300	10,015	182,400
1987-8 ¹	6,000	11,529	3,477	13,957	516	4,355	1,543	10,385	1,728	353	58,400	8,514	9,602	6,000	9,130	180,500
1988-9 ²	6,300	6,325	3,301	10,212		5,300		10,500				44,500	8,600	11,600	6,200	166,600
1989-90 ²	6,900	8,734	4,000	11,672							49,000					169,700

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.23

BARLEY

U.S. Barley Acreage and Prices

Year Begin- ning June 1	Acreage (Million Acres)				Yield per Harvest- ed Acre in — Bushels —	Seasonal Prices Minneapolis ² — or Better —				Govt. Price Support Operations			
	Na- tional Pro- gram	Set- aside	Planted	Harvest- ed for Grain		Re- ceived by Farm- ers ¹	Feed (No. 2)	Malt- ing (No. 3)	Port- land No. 2 Western	Na- tional Avg. Loan Rate	Target Price	Put Under Support (Mil. Bu.)	Total Pay- ments to Partici- pants ⁵ (Mil. \$)
Dollars per Bushel													
1980-1	8.7	—	8.3	7.3	49.7	2.84	2.60	3.64	3.34	1.83	2.55	31.2	31 ⁷
1981-2	10.2	—	9.6	9.0	52.4	2.44	2.21	3.06	2.87	1.95	2.50	60.5	63 ⁸
1982-3	—	.4	9.5	9.0	57.2	2.18	1.76	2.53	2.52	2.08	2.60	92.6	60 ¹⁰
1983-4	—	1.1	10.4	9.7	52.3	2.47	2.48	2.84	2.91	2.16	2.60	32.4	72 ³
1984-5	—	.5	12.0	11.2	53.4	2.29	2.09	2.55	2.59	2.08	2.60	56.9	50 ¹⁰
1985-6	—	.7	13.2	11.6	51.0	1.98	1.53	2.24	2.23	2.08	2.60	159.2	160 ¹⁰
1986-7	—	1.8	13.1	12.0	50.8	1.61	1.44	1.89	1.97	1.56	2.60	164.6	346 ³
1987-8 ⁴	—	2.9	11.0	10.1	52.6	1.81	1.78	2.04	2.09	1.49	2.30	125.0	333 ³
1988-9 ⁵	—	2.8	9.7	7.5	38.6	2.79	2.31	4.11	2.74	1.44	2.51	—	180 ⁹
1989-90	—	2.2	9.2	8.3	48.6	2.45	—	—	—	1.34	2.43	—	—

¹ Excludes support payments. ² Duluth beginning March 1987. ³ Deficiency & diversion payments. ⁴ Preliminary. ⁵ Estimate. ⁶ Available for total feed grains only. ⁷ Disaster payments. ⁸ Deficiency & disaster payments. ⁹ Deficiency, disaster & diversion payments. ¹⁰ Deficiency payments. Source: Economic Research Service, U.S.D.A. T.24

Production of Barley in the United States, by States In Millions of Bushels

Year	Ari- zona	Cali- fornia	Colo- rado	Ida- ho	Kan- sas	Minne- sota	Mary- land	Okla- homa	Montana	North Dakota	Oregon	Pennsyl- vania	Utah	South Dakota	Wash- ington	Wyo- ming
1980	4.5	44.1	15.9	59.0	2.1	34.6	3.4	1.7	44.1	48.0	10.1	3.8	10.8	15.2	32.3	8.6
1981	4.1	40.3	18.6	63.1	1.7	57.7	5.0	1.6	56.8	105.6	11.7	4.1	11.1	20.1	44.1	9.0
1982	3.8	38.4	15.9	75.9	2.5	51.0	5.4	1.1	76.4	103.4	15.5	3.4	12.9	23.4	49.4	9.4
1983	2.8	29.4	16.5	67.0	4.6	43.5	5.0	1.5	77.7	114.7	16.5	3.6	11.4	23.1	54.4	10.0
1984	5.4	29.0	20.2	88.4	6.7	61.8	5.5	2.1	59.1	153.7	17.4	3.6	11.6	30.3	63.7	10.4
1985	6.0	24.8	21.8	71.9	9.7	71.0	5.5	1.9	30.0	184.3	19.3	4.3	11.8	32.4	56.6	10.6
1986	2.9	23.6	21.0	72.2	10.4	55.0	4.9	1.3	85.0	176.0	20.8	3.9	11.6	35.9	45.0	10.9
1987	2.2	17.8	14.5	61.5	4.8	49.6	6.0	.8	94.5	139.2	15.4	3.4	11.8	34.0	35.5	10.4
1988	1.4	17.1	11.7	51.0	3.0	27.2	4.8	.8	30.0	45.2	14.8	3.6	9.6	8.1	34.7	8.7
1989 ¹	1.2	13.4	12.2	59.5	.6	44.0	4.0	.9	68.8	98.1	12.1	5.0	8.9	19.3	28.4	7.0

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.25

High, Low & Closing Prices of May Barley Futures at Winnipeg In Canadian Dollars per Tonne

Year of Delivery	Year Prior to Delivery							Delivery Year					Life of Delivery Range
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1984 High	109.00	110.50	131.00	142.10	141.00	138.00	137.00	137.00	133.00	132.00	134.60	149.00	149.00
Low	107.30	107.50	116.20	128.50	128.80	132.30	131.70	131.80	124.80	128.30	127.60	132.10	107.30
Close	107.50	110.50	128.60	137.20	134.00	133.90	136.20	132.60	128.90	132.00	133.00	142.00	—
1985 High	136.00	138.50	137.00	134.30	135.20	138.80	139.10	138.10	137.80	138.20	142.00	149.00	149.00
Low	130.10	124.30	129.80	129.70	132.20	133.80	136.50	136.20	130.40	134.00	138.20	128.50	124.30
Close	131.50	137.50	130.10	134.20	134.20	138.10	137.10	137.80	134.80	138.00	142.00	129.60	—
1986 High	—	131.10	120.40	117.00	116.90	116.20	115.60	114.40	105.40	102.60	102.30	116.00	131.10
Low	—	121.90	113.70	111.10	113.00	114.50	112.60	104.50	100.40	98.70	84.60	87.80	84.60
Close	—	122.00	114.10	113.70	115.70	115.45	113.60	104.90	100.90	102.20	92.80	115.10	—
1987 High	—	86.50	85.50	89.90	88.20	87.40	85.40	85.50	83.40	80.30	79.50	86.50	89.90
Low	—	85.30	83.50	83.20	83.20	82.70	84.00	83.00	77.20	76.50	74.00	76.00	74.00
Close	—	85.30	83.60	88.90	84.00	85.10	84.40	83.50	78.30	78.30	76.30	78.10	—
1988 High	87.30	82.00	74.70	74.30	72.60	76.00	74.90	78.50	76.80	73.70	78.00	101.40	101.40
Low	77.10	73.20	72.50	72.30	70.50	69.00	71.20	72.80	73.10	69.50	74.50	76.10	69.00
Close	83.00	75.20	72.50	72.40	70.60	74.60	74.30	73.40	74.20	73.70	78.00	98.50	—
1989 High	135.10	140.00	138.20	145.50	142.40	139.50	139.10	139.50	129.40	127.30	120.00	118.00	145.50
Low	111.00	120.00	129.80	138.00	135.00	129.70	131.40	127.90	120.90	119.30	101.00	104.90	101.00
Close	130.00	130.30	138.20	139.20	138.70	132.00	138.10	129.10	125.00	119.60	104.00	117.80	—
1990 High	—	—	—	116.80	115.80	120.20	120.80	—	—	—	—	—	—
Low	—	—	—	109.60	112.40	113.90	118.60	—	—	—	—	—	—
Close	—	—	—	109.60	114.70	120.00	119.20	—	—	—	—	—	—

Source: Winnipeg Commodity Exchange

T.26

BARLEY

Average Cash Price of No. 2 (or better) Feed Barley, in Duluth² In Cents Per Bushel

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
1982-3	212	185	172	169	154	158	159	163	172	173	201	195	176
1983-4	196	195	242	261	260	253	239	255	256	265	274	277	248
1984-5	259	218	213	205	210	206	188	198	199	197	205	205	209
1985-6	190	166	146	140	141	149	160	157	—	—	—	131	153
1986-7	123	116	113	127	150	163	123	—	—	164 ²	176	186	144
1987-8	173	159	160	176	178	182	174	172	177	188	194	198	178
1988-9	241	231	208	224	232	227	214	224	233	249	252	241	231
1989-90 ¹	212	222	217	214									

¹ Preliminary. ² Prior to March 1987 prices are at Minneapolis. Source: Economic Research Service, U.S.D.A.

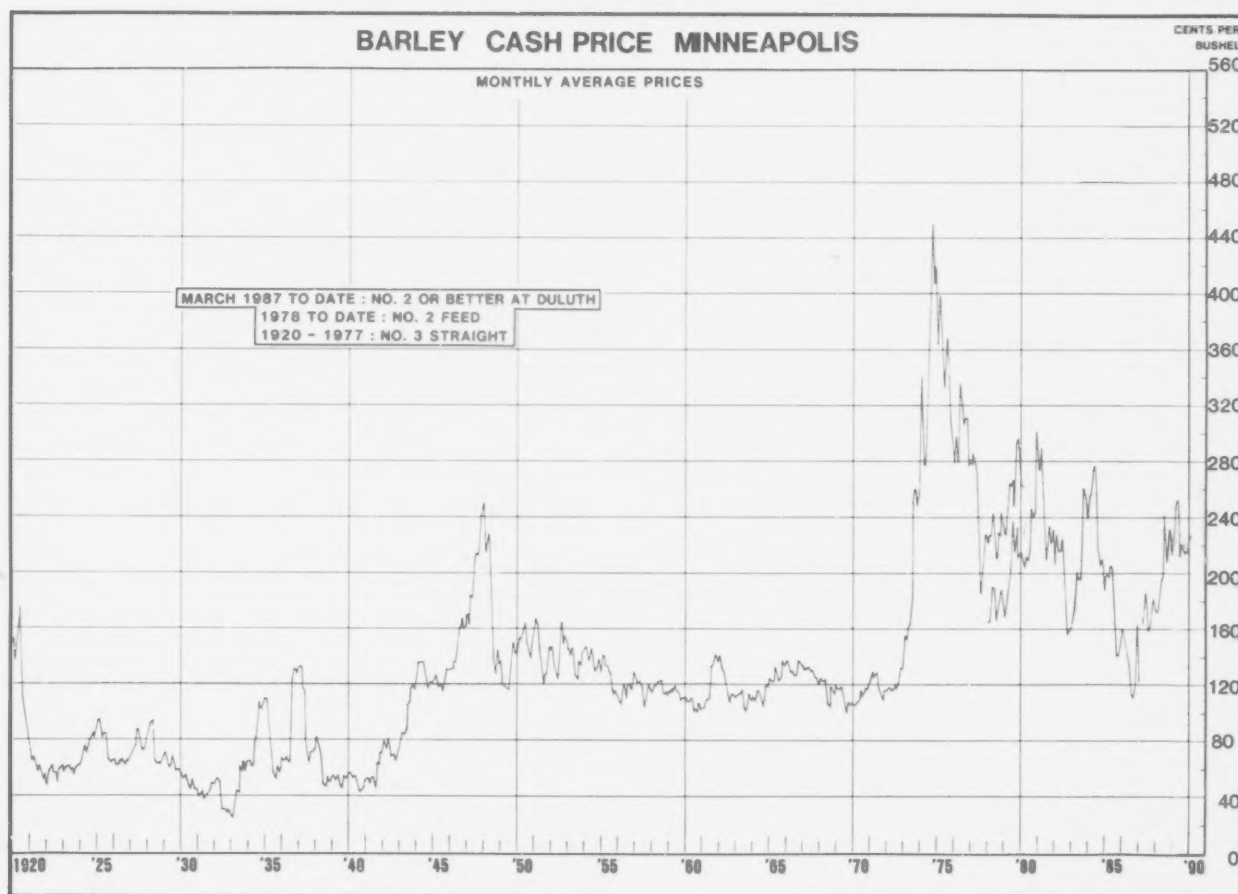
T.27

Month-End Open Interest of Barley Futures at Winnipeg In Contracts (20 Tonne)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	8,485	7,838	7,096	6,684	6,774	6,298	7,019	7,427	8,148	8,697	8,697	7,826
1983	9,952	10,972	9,535	10,458	11,064	12,592	12,688	18,486	19,110	17,099	15,083	10,673
1984	10,279	10,698	9,693	12,649	10,439	13,752	12,451	14,125	15,380	9,836	11,345	9,334
1985	10,984	11,828	9,622	8,152	9,187	9,187	8,808	9,529	9,948	10,166	9,948	7,624
1986	7,702	9,550	8,679	9,275	8,109	8,286	8,223	8,729	9,709	8,605	8,771	8,121
1987	8,107	8,695	8,981	9,759	11,167	11,389	9,004	9,086	11,273	13,089	13,030	12,003
1988	18,516	22,409	22,371	28,798	25,665	33,487	34,075	34,081	34,065	29,142	23,490	22,076
1989	20,456	17,109	13,375	14,524	11,505	7,753	9,090	12,854	15,178	13,207	11,708	10,230

Source: Winnipeg Commodity Exchange

T.28



BARLEY

Salient Statistics of Barley in the United States In Millions of Bushels

Year Begin. June 1	Supply				Disappearance					Ex- ports	Total Disapp.	Ending Stocks		
	Begin- ning Stocks	Produce- tion	Im- ports	Total Supply	Food	Alc. Bever- ages	Seed	Feed & Residual	Total			Gov't. Owned ¹	Privately Owned ²	Total Stocks
1978-9	173.1	454.8	10.5	638.4	6.0	147.5	13.6	217.6	384.7	25.7	410.4	2.5	225.5	228.0
1979-0	228.0	383.2	11.8	623.0	7.0	150.9	14.0	204.2	376.1	54.8	430.9	3.2	188.9	192.1
1980-1	192.1	361.1	10.2	563.4	7.0	155.3	13.2	173.9	349.4	76.7	426.1	3.4	133.9	137.3
1981-2	137.3	473.5	9.6	620.4	6.9	150.9	16.3	198.4	372.5	100.1	472.6	3.3	144.5	147.8
1982-3	147.8	515.9	10.7	674.4	7.2	145.5	17.4	240.4	410.5	47.2	457.7	6.0	210.7	216.7
1983-4	216.7	508.9	7.1	732.7	7.0	142.5	19.5	282.8	451.8	91.4	543.3	11.9	177.5	189.4
1984-5	189.4	599.2	10.1	798.7	—	149.0	—	21.4	304.1	474.5	551.3	15.6	231.8	247.4
1985-6	247.4	591.4	8.9	848.8	—	147.2	—	21.3	332.6	501.1	522.9	57.4	267.4	324.8
1986-7	324.8	610.5	8.7	944.0	—	156.1	—	17.9	297.8	471.8	608.4	75.5	260.1	335.6
1987-8	335.6	529.5	13.6	878.7	—	158.3	—	15.7	258.0	432.0	558.1	50.1	271.1	321.2
1988-9 ³	321.2	293.5	11.8	626.5	—	165.7	—	15.0	165.7	345.4	430.0	30.4	166.1	196.5
1989-0 ⁴	196.5	404.6	15.0	616.6	—	165.0	—	15.0	190.0	370.1	455.1	40.0	121.0	161.0
1990-1 ⁴	161.0													

¹ Uncommitted inventory. ² Includes quantity under loan & farmer-owned reserve. ³ Preliminary. ⁴ Estimate.
Source: Economic Research Service, U.S.D.A.

T.29



Bauxite

Continuing gains in aluminum demand made 1989 a stable year for bauxite producers, though demand was not up to 1988's record pace. There were some changes in the small domestic mining sector; the number of producers fell from four to three, with only four fully operational mines in Alabama, Arkansas and Georgia. Overseas producers brought moribund mining facilities back to life, as the relatively high price of aluminum provided incentives to reopen.

In the U.S., one long-closed alumina production unit was reopened in Burnside, La. by Ormet Corporation, and by year-end it was producing 575,000 tonnes. There were five plants capable of producing over 5 million tonnes of alumina a year for the domestic industry. Alumina capacity utilization was close to 95 percent at 1988's end and continued strong in 1989.

U.S. alumina exports amounted to 1.03 million tonnes in 1988, and in the first five months of 1989 totaled 592,000 tonnes. Canada was the major customer, taking 385,000 tonnes of the five-month export figure. Mexico, a distant second, was the destination for 74,000 tonnes in the same period.

U.S. imports of crude and dried bauxite for con-

sumption in 1988 totaled 9.94 million tonnes. Guinea was the largest U.S. supplier in 1988, providing 4.52 million tonnes. For the first five months of 1989, Jamaica was the main supplier with 1.51 million tonnes, followed by Guinea with 1.45 million. The U.S. also imported 691,000 tonnes from Australia and 514,000 from Brazil.

Imports of alumina for consumption totaled 4.63 million tonnes in 1988, and for the first five months of 1989 were 1.76 million. Australia, which led all alumina suppliers with 3.53 million tonnes in 1988, was also the leader in 1989's review period, providing 1.40 million tonnes to the U.S. in the first five months. Additionally, the U.S. imported alumina from Surinam, Venezuela and Jamaica. Imports from Jamaica were down from previous levels.

Bauxite resources are estimated to be 55 billion-77 billion tonnes on a global basis. Domestic resources of bauxite are inadequate to meet long-term demand, but the U.S. and other major aluminum-producing nations have almost inexhaustible sources of non-bauxite materials. Vast alumina-bearing clays in the U.S. are a technically feasible source of raw material for aluminum production.

World Production of Bauxite In Thousands of Metric Tons

Year	Australia	Brazil	China	France	Greece	Guinea	Guyana ²	Hungary	Indonesia	Jamaica ³	Malaysia	Surinam	USSR ³	U.S. ³	Yugoslavia	World Total
1979	27,583	2,388	1,500	1,969	2,812	11,326	2,312	2,976	1,052	11,618	387	5,010	4,600	1,821	3,012	85,522
1980	27,179	5,538	1,500	1,921	3,286	11,862	1,844	2,950	1,249	12,054	920	4,646	4,600	1,559	3,138	89,220
1981	25,441	5,770	1,500	1,827	3,216	11,112	1,681	2,914	1,203	11,682	701	4,006	4,600	1,510	3,249	85,347
1982	23,625	6,289	1,500	1,662	2,853	11,827	1,783	2,627	700	8,378	589	4,205	4,600	732	3,668	79,335
1983	24,372	7,199	1,600	1,663	2,455	12,421	1,087	2,917	778	7,683	502	3,400	4,600	679	3,500	78,687
1984	31,537	6,433	1,600	1,607	2,296	13,160	1,333	2,994	1,003	8,937	680	3,454	4,600	856	3,347	87,799
1985	31,839	5,846	1,650	1,530	2,453	13,100	1,675	2,815	830	5,975	492	3,000	4,600	674	3,538	84,496
1986	32,384	6,544	1,650	1,379	2,230	12,130	1,466	3,022	750	6,944	559	3,847	4,600	510	3,459	86,093
1987 ¹	34,000	7,250	2,400	1,271	2,400	13,400	2,200	3,101	635	7,775	482	1,200	4,600	576	3,394	90,302
1988 ²	36,192	8,750			2,400	15,600	1,774			7,408		3,434	4,600	588	3,034	98,859
1989 ²	37,000	8,800			2,550	16,800	1,000			8,300		3,400	4,600	615	3,100	101,000

¹ Preliminary. ² Estimate. ³ Dry Bauxite equivalent of ore processed. Source: Bureau of Mines

T.30

U.S. Salient Statistics of Bauxite In Thousands of Metric Tons

Year	Net Import Reliance as a % of Apparent Consumption	Av. Price F.O.B. Mine \$ per Ton	Mine Production			Recovery ¹ of Processed Bauxite			Dry Equivalent		Stocks, Dec. 31			
			Crude	Dried Equivalent	Value (\$1,000)	Crude Ore Treated	Recovered ¹ Total	Dried Equiv.	Imports ² (for Consumption)	Exports ²	Producers & Processors	Consumers	Govt.	Total
1978	93	5-15	2,066	1,669	23,185	379	154 236		13,847	13	14,738	556	7,806	14,661 23,023
1979	93	5-15	2,186	1,821	24,875	466	235 336		13,780	15	15,697	620	7,958	14,661 23,239
1980	94	6-16	1,869	1,559	22,353	355	179 277		14,087	21	15,962	662	7,681	14,661 23,004
1981	94	8-20	1,847	1,510	26,489	419	187 328		12,802	20	13,525	897	7,395	14,661 22,953
1982	96	8-20	896	732	12,334	234	120 184		10,122	49	9,217	614	6,548	16,326 23,488
1983	96	13-20	826	679	11,309	293	140 225		7,601	74	9,100	552	5,061	16,326 21,939
1984	96	13-20	1,054	856	15,643	361	168 294		9,435	82	10,519	499	4,382	17,338 22,219
1985	96	13-20	787	674	12,855	330	166 284		7,158	56	8,206	220	3,423	18,357 22,000
1986	96	13-17	617	510	10,361	250	128 196		6,456	69	6,901	186	3,133	18,472 21,791
1987 ³	96	13-17	689	576	10,871	131	62 102		9,156	201	9,548	212	2,824	18,472 21,508
1988 ⁴	97	13-17	588						10,555	71	9,800			21,300
1989 ⁴	97	15-20	615						12,600	60	10,000			21,000

¹ Calcined, or sintered. ² Including concentrates. ³ Preliminary. ⁴ Estimate. Source: Bureau of Mines

T.31

Bismuth

In early 1989, bismuth prices continued the upward spiral started in 1988, as continued strong demand and increased production costs underpinned values. The dealer price for bismuth began 1989 at \$6.55-\$6.75 a pound and increased to \$6.85 by the end of the quarter. Prices then started to erode, ending the year at \$5.50 a pound.

During the year, the U.S. Bureau of Mines, began to report bismuth statistics in kilograms instead of pounds.

U.S. bismuth consumption in 1988 amounted to 1.53 million kilograms. Consumption in 1989 was down from that on an implied basis, as the total for the first six months was only 681,828 kilograms. In 1988, U.S. imports for consumption totaled 1.64 million kilograms, and in the first six months of 1989 they were 637,698 kilograms for an implied annual 1.275 million.

Primary U.S. bismuth production in 1989 came from one firm in Nebraska. Production figures were not available from the U.S. Bureau of Mines, as they were considered proprietary information. U.S. output of bismuth is derived through the processing

of intermediate metallurgical products, such as lead bullion, which contains a minor amount of bismuth.

The bulk of U.S. imports of bismuth came from four nations. Mexico was the major U.S. supplier in 1988 with 448,541 kilograms, followed by Belgium with 340,157, and the United Kingdom with 259,147. However, in the first six months of 1989, U.S. imports from Mexico were lagging the 1988 pace, and imports from Belgium of 233,593 kilograms held the lead.

Bismuth consumption centers in the industrial belt of the northern and eastern U.S. Fifty-one companies east of the Mississippi River account for 92 percent of the bismuth consumed domestically.

Bismuth is used mainly in pharmaceuticals and chemicals, which account for 47 percent of reported consumption. Primary metal industries accounted for 31 percent of bismuth consumption, while manufacturing of parts for machinery used 21 percent.

The world's leading producer of bismuth is Australia, followed by Peru, Mexico and Canada.

World Mine Production of Bismuth In Thousands of Pounds

Year	Romania (Ore)	Australia (concentrates)	Bolivia (concentrates)	Canada	China (Ore)	France (Metal)	South Korea (Metal)	Yugoslavia (Metal)	Japan (Metal)	Mexico (Metal)	Peru (Metal)	West Germany (Ore)	USSR (Metal)	World Total
1978	180	2,324	677	320	530	N.A.	269	29	1,375	2,156	1,347	20	150	9,412
1979	180	2,200	22	306	570	N.A.	192	51	1,010	1,662	1,162	22	160	7,548
1980	180	2,650	24	377	570	N.A.	271	183	745	1,698	1,096	0	160	7,954
1981	180	2,600	24	370	570	N.A.	220	225	1,054	1,446	1,409	0	170	8,268
1982	180	3,310	11	417	570	N.A.	209	108	1,071	1,336	1,676	0	170	9,058
1983	180	3,110	13	445	570	N.A.	220	99	1,263	1,202	1,495	—	180	8,777
1984	180	2,980	7	366	570	N.A.	278	66	1,241	955	1,433	—	180	8,256
1985	180	3,090	351	443	570	N.A.	298	150	1,415	2,039	1,731	—	185	10,452
1986	180	2,200	95	573	570	N.A.	300	46	1,411	1,651	1,500	—	185	8,711
1987 ¹	170	2,400	5	490	570		220	161	1,200	2,150	1,400		190	8,956
1988 ²		2,200	4	400			280		1,100	2,000				9,000
1989 ²		2,300	5	450			300		1,000	2,300				9,500

¹ Preliminary. ² Estimate. Source: Bureau of Mines

T.35

U.S. Salient Statistics of Bismuth In Thousands of Pounds

Year	Bismuth Consumed, By Uses						Consumer Stocks Dec. 31	Exports of Metal & Alloys	General Imports of Metallic Bismuth from				Price ¹ \$ Per Pound
	Experimental	Metal-lurgical Additives	Other Alloys	Fusible Alloys	Chem-icals ⁴	Other Uses			Peru	Mexico	Japan	Total	
1978	.6	485.3	21.8	836.0	1,149.7	18.6	2,511.9	781.9	96.3	334.7	535.3	2,657.8	3.38
1979	3.2	703.8	22.0	721.0	1,248.7	28.5	2,727.2	629.7	427.8	648.7	604.8	2,167.3	3.01
1980	1.2	467.9	26.5	650.9	1,115.6	26.7	2,288.8	674.0	128.7	619.1	860.4	2,217.4	2.64
1981	.2	307.0	26.0	657.0	1,387.6	15.0	2,392.7	509.0	78.7	859.3	724.1	2,436.2	2.32
1982	.5	124.6	21.4	571.6	1,144.8	13.6	1,876.4	541.6	52.8	864.1	699.5	2,026.2	1.61
1983	1.7	522.8	20.0	622.8	1,103.7	13.0	2,285.3	577.5	306.1	653.7	706.6	1,972.0	1.72
1984	—	424.5	20.0	608.8	1,573.0	22.0	2,648.4	480.0	311.5	391.8	430.5	1,948.4	4.27
1985	—	668.2	21.0	610.1	1,325.0	20	2,643.5	507.1	268.7	173.3	678.2	1,998.9	5.18
1986	—	772	28	639.0	1,462	18	2,919	763	92.6	235.8	800.0	2,489	3.25
1987 ²	—	1,088	24	735.9	1,650	24	3,521	648	84	971.0	862.6	3,485	3.65
1988 ³	—	1,075	26	727	1,603	10	3,375	955	324	600	1,000	3,618	5.78
1989 ³							3,086	882	265			3,748	5.56

¹ N.Y., average ton lots; effective Oct. 1981, domestic producers' list price was suspended. Major foreign producer price is recorded.

³ Estimate. ⁴ Includes pharmaceuticals. Source: Bureau of Mines

² Preliminary. T.36

Broilers

U.S. broiler production rose an estimated 7 percent in 1989 to 17.3 billion pounds. Strong demand resulted in an average wholesale price of 50 cents/lb., up from 56.3 cents in 1988. Net average returns for the year were 10 cents/lb., the second highest on record.

Stronger broiler demand was partly attributed to increased marketing of chicken parts in fast food restaurants. Per capita broiler consumption in 1989 was 65 pounds, up 3 pounds from 1988, and was expected to rise to 70 pounds in 1990. It was possible that U.S. chicken consumption would surpass beef consumption in 1990.

U.S. broiler exports reached 950 million pounds in 1989, which was the third consecutive year of record shipments. Japan continued as the largest export market for U.S. broilers. Soviet purchases of broiler meat contributed to export strength late in the year. U.S. broiler prices were attractive to the Soviet Union, because that country prefers dark meat, which is higher in protein. Dark meat was in oversupply in this country. U.S. exports were projected to increase again in 1990, possibly to 1 billion pounds.

Wholesale broiler prices were expected to drop to the low-50 cents per pound area in 1990.

Broiler Supply and Prices in the United States

Year & Quarters	Number (Mil.)	Avg. Wt. (Lbs.)	Federally Inspected Slaughter		Total Production RTC ² (Mil. Lbs.)	Per Capita Consumption (Lbs.)	Prices (Cents/Lb.)	
			Liveweight Pounds (Mil. Lbs.)	Certified RTC Wt. (Mil. Lbs.)			Farm	City ³
1985	4,439	4.20	18,623	13,569	13,762	55.5	30.2	50.7
1986	4,643	4.24	19,676	14,266	14,316	56.7	34.5	57.0
1987	4,971	4.29	21,333	15,502	15,594	60.2	28.3	47.4
1988 ¹	5,159	4.30	22,207	16,124	16,180	62.5	34.0	56.2
1988 I	1,267	4.35	5,511	3,996	4,015	15.6	26.7	45.7
II	1,303	4.30	5,611	4,079	4,098	15.9	33.1	55.7
III	1,317	4.20	5,530	4,035	4,039	15.6	41.0	66.1
IV	1,272	4.36	5,555	4,015	4,028	15.4	35.3	57.2
1989 ¹ I	1,310	4.35	5,698	4,129	4,142	15.9	36.4	59.4
II	1,394	4.33	6,332	4,389	4,404	16.7	42.2	67.1
III	1,411	4.29	6,048	4,384	4,411	16.8	37.4	59.7
IV							29.7	49.8

¹ Preliminary. ² Total production equals fed, inspec. slaughter plus other slaughter minus cut-up & further processing condemnation. ³ 12-city weighted average. Source: Economic Research Service, U.S.D.A. T.38

Salient Broiler Statistics in the United States

Year	Commercial ² Production		Average		Gross Income (Mil. \$)	Total Chickens ² Supply & Distribution								
	Number (Millions)	Live weight (Mil. Lbs.)	Live weight Per Bird (Lb.)	Farm Price (¢ Lb.)		Commercial Broilers	Slaughter Other Chickens	Total	Storage Stocks Jan. 1	Export & Shipments	Consumption—Civilian			
											Military	Total	Per Capita (in Lbs.)	
In Millions of Pounds														
1983	4,184	17,038	4.09	28.6	4,873	12,400	717	13,117	149	591	36	12,548	53.8	
1984	4,282	17,863	4.17	33.7	6,018	13,017	672	13,688	135	580	36	13,083	55.7	
1985	4,479	18,851	4.20	30.1	5,680	13,762	636	14,398	139	582	36	13,784	58.0	
1986	4,646	19,651	4.24	34.5	6,780	14,316	627	14,943	171	734	37	14,194	59.1	
1987 ¹	5,003	21,520	4.29	28.3	6,176	15,594	652	16,245	187	920	35	15,298	62.8	
1988 ³	5,236	22,455		34.0	7,432	16,180	638	16,818	213	791	35	16,047	65.1	
1989 ³				36.4		17,270	624	17,894	193	969		16,918	68.0	

¹ Preliminary. ² Ready-to-cook basis. ³ Estimate. Source: Economic Research Service, U.S.D.A. T.39

Average Wholesale Broiler¹ Prices RTC In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.	4-Region Ave. Retail	Hens-N.Y. ² 8-16 Lbs.
1983	43.1	45.2	41.9	40.9	46.9	49.1	52.8	54.2	54.5	50.4	56.3	57.1	49.4	72.8	60.5
1984	62.1	61.2	62.0	56.0	57.6	55.5	57.3	51.5	53.6	48.8	52.1	49.0	55.6	81.4	74.4
1985	52.8	51.9	49.7	47.8	50.9	53.4	50.2	50.1	52.2	48.3	53.7	48.7	50.8	76.3	75.5
1986	51.7	49.0	50.3	50.0	54.6	58.3	69.1	69.7	61.0	61.6	57.5	50.0	56.9	83.5	72.2
1987	51.8	49.8	48.5	48.6	50.5	45.5	47.0	52.6	46.4	43.2	44.6	39.8	47.4	78.5	57.8
1988	43.9	44.9	48.4	48.7	56.6	61.5	66.5	68.9	62.8	57.7	57.1	58.8	56.3	85.4	61.1
1989	58.0	58.0	62.1	63.5	70.4	67.4	62.0	57.3	59.9	51.7	49.2	48.6	59.0	92.7	66.7

¹ Ice packed, ready-to-cook. ² In retail stores (urban areas), whole or cut-up ready to cook. Source: Bureau of Labor Statistics T.37

Butter

The impact of the Dairy Termination Program was to reduce the size of the dairy herd, but this resulted in the elimination of low-yielding animals. In third-quarter 1989, milk production fell 6 percent from the first quarter of 1989 and was down marginally from the same quarter in 1988. With the decline in feed and forage prices after the 1988 drought, milk production was expected to begin to rebound.

According to USDA, milk marketings in 1989 were forecast at 143.5 billion pounds, up from 143.3 billion in 1988. During Jun.-Aug. 1989, milk marketings were about 2 percent below a year earlier. The milk equivalent of major manufactured products was down about 1 percent from a year earlier.

During Jan.-Aug. 1989, butter production was 884 million pounds, 7 percent more than in the same period of 1988. Butter production in 1988 was 1.21 billion pounds, up 9 percent from 1987 and slightly above 1986. Butter output in 1988 used 23.1 billion pounds of the milk marketed. Butter accounted for 16 percent of total milk use, while cheese accounted for 31 percent.

Commercial disappearance of butter in the second quarter of 1989 was 144 million pounds, compared to 222 million in second-quarter 1988. Butter use in Jun.-Aug. 1989 fell 6 percent from a year earlier. For all of 1989, commercial use of milk and dairy products was expected to reach a record.

Commercial dairy stocks on September 1 were equivalent to 5.8 billion pounds on a milk fat basis, 10 percent more than a year earlier. Part of the increase was due to a buildup in butter stocks, because of greater production and a decline in commercial use. Commercial stocks of butter on September 1, 1989 were 87.7 million pounds, up 28 percent from September 1988 and 80 percent above 1987. At the same time, commercial stocks of

American cheese rose by 3 percent. Government stocks of butter in September 1989 were 356.6 million pounds, up 57 percent from September 1988 and 118 percent more than in 1987.

Total Commodity Credit Corporation (CCC) removals of butter during Jan.-Sept. 1989 were 376 million pounds, 40 percent more than the 268 million removed in Jan.-Sept. 1988. Butter removals over the Jun.-Sept. period were almost 44 percent lower than a year earlier. On October 1, 1989 the CCC's uncommitted inventories of butter were 190.7 million pounds, 51 percent below the level of July 1, 1989, but 18 percent more than the inventory on October 1, 1988. During the summer of 1989, butter stocks were the largest since July 1, 1983.

Wholesale prices of butter in Chicago were lower in 1988 than in 1987. The 1988 average price per pound was 132.48 cents; in 1987 it was 140.20 cents. In comparison, the price of cheese was slightly higher in 1988 than in 1987. Nonfat dry milk prices were also up year-to-year. Through September of 1989, butter prices declined further and averaged 130 cents per pound.

The world market for dairy products was strong in 1989 and was expected to remain that way. World cow milk production was projected by USDA at 434 million tonnes, almost 1 percent above 1988. World production of butter in 1989 was forecast at 6.6 million tonnes, close to the 1988 level. Production increases by the U.S. were partially offset by declines in the European Community.

Butter stocks in the EC had fallen, lowering the amount of butter available for export. Exports by the major butter trading countries in 1989 were projected by USDA at 738,000 tonnes, down 29 percent from 1988. U.S. exports were projected at 70,000 tonnes, up sharply from 20,000 in 1988.

Supply and Distribution of Butter in the United States In Millions of Pounds

Year	Supply and Distribution of Pork in the United States												93 Score Wholesale Prices		
	Supply				Domestic Disappearance				Distribution						
	Production	Cold Storage Stocks ¹ Jan. 1 ²	Imports	Total Supply	Total	Donated	Per Capita —Lbs.—	Exports	Shipments ⁴	Dept. of Agr.			Total Use	Calif. AA	Chi. AA
										Jan. 1 Stocks ⁵	Dec. 31 Stocks ³	Removed by U.S.D.A. Programs			
														\$ Lb.	
1985	1,248	310	4	1,562	1,164	243	4.9	180	1	273	181	334	1,345	1.6894	1.4197
1986	1,202	217	4	1,423	1,114	201	4.6	55	2	181	220	287.6	1,171	1.7140	1.4522
1987	1,104	252	5	1,361	1,128	225	4.6	85	1	220	96	187.3	1,214	1.6748	1.4172
1988 ³	1,208	147	5	1,359	1,098	191	4.5	45	1	96		312.6	1,144		
1989 ⁶	1,260	215			950										

¹ Includes butter-equivalent of butteroil. ² Includes stocks held by U.S.D.A. ³ Preliminary. ⁴ Includes U.S.D.A. shipments to Territories. ⁵ Includes butteroil. ⁶ Estimate. Source: Department of Agriculture T.43

Commercial Disappearance of Creamery Butter in the U.S. In Millions of Pounds

Year	Quarter				Total	Year	Quarter				Total
	1 st	2 nd	3 rd	4 th			1 st	2 nd	3 rd	4 th	
1983	209.5	198.6	217.0	256.6	881.7	1987	222.7	222.1	218.4	239.3	902.5
1984	194.0	241.3	215.6	251.9	902.7	1988 ¹	194.5	221.6	219.7	274.0	909.8
1985	200.0	203.9	241.5	272.9	918.2	1989 ¹	180.2	144.3	228.0		

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.46

BUTTER

World (Total) Butter¹ Production In Thousands of Metric Tons

Year	Australia	Brazil	Canada	E. Germany	Czechoslovakia	Argentina	Denmark	France	Ireland	W. Germany	Netherlands	N. Zealand	India	Poland	Sweden	USSR	South Africa	United Kingdom	United States
1981	79	60	125	281	127	32	108	599	125	545	183	247	620	260	64	1,318	15	170	557
1982	76	70	134	266	138	37	121	624	140	556	216	248	650	265	70	1,403	17	216	570
1983	88	70	118	291	149	34	131	637	164	627	271	252	670	300	73	1,562	19	240	589
1984	111	70	119	309	152	29	104	621	171	572	241	287	690	322	77	1,588	18	205	500
1985	114	70	108	316	150	32	110	595	163	515	306	293	700	308	74	1,596	17	202	566
1986	105	65	109	320	156	32	112	633	160	567	377	299	720	289	66	1,700	15	222	545
1987	104	65	95	322	149	34	96	569	150	464	234	248	750	290	64	1,742	11	174	501
1988 ²	94	65	105	310	147	35	94	521	135	390	214	276	850	293	61	1,794	15	139	547
1989 ³	92	60	106	306	150	37	93	530	132	400	205	248	890	290	68	1,800	16	120	570

¹ Factory (including creameries and dairies) & farm. ² Preliminary. ³ Forecast. Source: Foreign Agricultural Service, U.S.D.A.

T.44

Production of Creamery Butter in Factories in the United States In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	123.1	108.4	115.5	117.3	115.5	95.9	82.7	82.3	85.2	99.5	93.4	109.5	1,228
1982	127.3	115.9	123.4	—	334.0	—	—	256.4	—	—	300.0	—	1,257
1983	139.1	119.2	123.6	124.0	120.7	103.7	91.4	84.6	84.7	100.5	98.1	109.6	1,299
1984	127.3	108.9	107.6	103.0	105.1	81.8	72.7	70.2	67.5	84.4	79.8	95.1	1,103
1985	116.8	104.6	105.9	111.4	112.9	95.6	92.4	92.1	92.1	109.3	99.4	115.4	1,248
1986	136.7	119.3	119.2	122.7	114.7	93.0	79.7	69.9	80.2	85.3	80.3	101.3	1,202
1987 ¹	109.2	97.8	107.6	104.2	101.7	83.1	76.2	66.4	77.9	91.2	87.9	108.5	1,104
1988 ¹	124.7	117.1	116.4	111.7	107.9	90.8	76.3	74.1	83.3	92.3	95.6	112.0	1,208
1989 ¹	129.0	124.7	135.7	124.7	122.5	95.3	72.2	80.1	82.1	92.7	93.6	—	—

¹ Preliminary. ² Estimate. Source: Crop Reporting Board, U.S.D.A.

T.45

Cold Storage Holdings of Creamery Butter in the U.S., on First of Month In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	304.6	332.1	372.3	407.4	450.4	473.6	507.5	515.5	515.6	489.5	470.0	451.1
1982	429.2	430.3	440.4	447.8	—	—	541.6	—	—	510.0	—	—
1983	466.8	485.4	522.0	529.0	555.7	576.1	589.6	588.4	581.8	552.3	523.9	506.7
1984	499.4	510.6	532.5	529.3	532.4	538.5	516.7	489.6	462.7	426.3	374.3	335.9
1985	296.6	277.3	289.4	291.7	272.7	283.2	286.8	280.7	264.6	247.0	231.6	206.9
1986	205.5	206.3	242.4	283.3	305.0	330.8	342.8	337.6	304.4	279.6	253.3	218.5
1987	193.0	206.6	231.6	254.0	247.9	251.1	237.9	211.2	187.3	176.2	165.6	158.5
1988	143.2	157.3	198.9	221.1	240.4	230.5	293.4	295.8	294.4	253.4	237.3	226.2
1989 ¹	214.7	246.6	314.4	341.9	379.1	438.3	464.2	461.0	439.2	407.6	370.4	294.1
1990 ¹	248.3	—	—	—	—	—	—	—	—	—	—	—

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.47

Wholesale Price of 92 Score Creamery (Grade A) Butter at Chicago In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	147.3	147.3	147.3	147.3	147.3	147.5	147.9	148.0	148.5	150.6	148.9	148.1	148.0
1982	147.5	147.5	147.8	147.4	147.3	147.3	147.6	148.1	148.4	147.4	148.2	147.9	147.7
1983	147.3	147.3	147.3	147.3	147.3	147.3	147.8	151.0	147.6	147.3	143.1	143.1	147.3
1984	140.4	141.3	142.1	142.9	142.9	150.0	155.6	150.6	158.1	158.1	158.1	145.6	148.8
1985	141.5	141.3	141.3	141.9	141.9	141.9	141.5	140.7	141.2	141.6	139.5	139.1	141.1
1986	138.8	138.8	137.5	138.8	138.8	139.1	143.7	153.9	154.2	153.5	151.9	145.5	144.5
1987	137.3	136.8	137.8	138.8	138.4	144.6	149.0	148.1	145.3	136.8	135.6	134.0	140.2
1988	131.9	131.0	131.0	131.0	131.0	133.5	135.9	135.6	134.3	132.0	131.3	131.3	132.5
1989	131.0	131.0	131.0	131.0	131.0	131.0	130.3	132.8	125.1	120.5	120.5	120.0	127.9

Source: Economic Research Service, U.S.D.A.

T.48

Cadmium

U.S. refinery production of cadmium fell to an estimated 1,750 tonnes in 1989 from 1,885 the previous year, according to the Bureau of Mines. Production of cadmium metal in the fourth quarter was 11 percent above the previous quarter, but about 17 percent below the last quarter of 1988. Domestic output came from four companies, each operating one plant. Nickel-cadmium batteries remained the major market for cadmium, followed by coating and plating, pigments, and plastic products.

U.S. cadmium imports for consumption in 1989 were put at 2,700 tonnes, which was above 2,482 in 1988. Canada and Mexico were the major suppliers, followed by France, Australia, and the Netherlands. Exports of cadmium declined to an estimated 500 tonnes from 613 tonnes in 1988. Japan and Hong Kong were the chief U.S. customers.

The New York dealer price of cadmium metal was \$5.30 per pound in late 1989, down from \$6.91 a year earlier. The decline was attributed to a

slowing in demand from the nickel-cadmium battery industry.

A preliminary finding by the U.S. Occupational Safety and Health Administration (OSHA) indicated that employees exposed to cadmium faced a significant health risk at current permissible exposure limits. Accordingly, OSHA proposed more stringent regulations for exposure to cadmium in the agriculture, maritime, and construction industries. The proposed rule was described in the Federal Register.

World refinery production of cadmium in 1989 was estimated at 20,720 tonnes, up nearly 5 percent from the previous year. The leading producer was Japan, followed by Canada, the U.S., and Belgium. The zinc-bearing coals of the U.S. contain large potential resources of cadmium.

Coatings of zinc substitute for some cadmium-plating applications, and tin may be used in place of some cadmium pigments.

World Refinery Production of Cadmium In Metric Tons

Year	Australia	Belgium	Canada	China	Finland	France	W. Germany	Italy	Japan	Mexico	Norway	Poland	Un. King.	USSR	United States ³	Zaire	World Total
1977	670	1,440	1,185		527	790	1,336	448	2,844	908	97	754	295	2,750	1,999	246	18,288
1978	747	1,164	1,265		611	694	1,182	378	2,531	897	120	761	291	2,800	1,653	186	17,310
1979	804	1,440	1,455		590	689	1,266	527	2,597	830	115	773	424	2,850	1,823	212	18,679
1980	1,012	1,524	1,303	250	581	789	1,194	568	2,173	778	130	698	375	2,850	1,578	168	18,238
1981	1,031	1,176	1,298	270	621	663	1,192	489	1,977	590	117	580	278	2,900	1,603	230	17,381
1982	1,010	996	854	300	566	793	1,030	475	2,034	607	104	570	354	2,900	1,007	280	16,387
1983	1,121	1,260	1,456	300	616	513	1,094	385	2,214	847	117	570	340	3,000	1,052	308	17,636
1984	1,082	1,472	1,605	300	614	568	1,111	452	2,423	838	150	570	390	3,000	1,686	318	19,463
1985	910	1,252	1,717	300	565	337	1,095	526	2,535	905	159	600	370	3,000	1,603	296	18,723
1986	1,000	1,374	1,421	300	522	431	1,218	411	2,489	1,016	154	600	380	3,000	1,486	300	18,525
1987 ¹	1,000	1,300	1,500	300	650	300	1,200	325	2,440	1,000	150	600	500	3,000	1,515	300	18,566
1988 ²	900	1,450	1,792						2,560	900					1,885		19,823
1989 ²	850	1,650	1,800						2,600	900					1,750		20,720

¹ Preliminary. ² Estimate. ³ Primary & secondary metal. Source: Bureau of Mines

T.49

Salient Statistics of Cadmium in the United States In Metric Tons of Contained Cadmium

Year	Net Import Reliance as a % of Apparent Consumption	Production				Imports ³ of Cad- mium Metal				Price ⁵ \$ per lb.	Exports		Con- sump- tion ⁴	Stocks, Dec. 31		
		Metallic	Primary Producers		Cad- mium Sulfide ³	Austra- lia	Can- ada	Mex- ico	Total		Cadmium Metal, Alloys, Dross, Flue Dust	Value Ths. \$		Industry		
			Ship- ments	Value Mil. \$										Metallic	Com- pounds	Distrib- utors
1977	51	1,999	1,837	7.1	639				2,345	2.96	107	316	3,818	1,452	72	255
1978	63	1,653	1,957	5.9	698				2,881	2.45	326	864	4,510	1,152	45	296
1979	64	1,823	2,468	9.5	813				2,572	2.76	211	550	5,099	517	52	327
1980	55	1,578	1,271	5.2	801				2,617	2.84	236	464	3,534	841	42	439
1981	63	1,603	1,382	3.8	527				3,090	1.93	239	332	4,378	1,077	68	215
1982	73	1,007	1,832	2.6	374	446	375	171	2,305	1.11	11	126	3,728	635	167	150
1983	72	1,052	1,495	1.8	670	713	938	126	2,196	1.13	170	351	3,763	209	49	91
1984	51	1,686	1,811	2.6	771	363	862	174	1,889	1.69	106	208	3,300	208	59	52
1985	57	1,603	1,791	2.4	477	483	1,044	162	1,988	1.21	86	342	3,720	136	111	59
1986	66	1,486	2,030	1.9	645	589	1,221	441	3,174	1.25	38	188	4,385	303	73	65
1987 ²	64	1,515	1,916	1.9	540	427	1,164	496	2,701	1.99	241	660	4,178	126	98	37
1988 ¹	48	1,885	2,200		420				2,482	7.00	613	3,697	3,621	332	128	21
1989 ¹	56	1,750							2,700	6.50	500		4,000			

¹ Estimate. ² Preliminary. ³ For consumption. ⁴ Apparent Primary cadmium in all forms. ⁵ Sticks & Balls in 1 to 5 short ton lots. Source: Bureau of Mines

T.50

Castor Beans

World production of castor seed declined in the late 1980s from earlier levels. While China's production held its own, output fell in India and Brazil. China's 1988/89 crop was forecast by *Oil World* at 275,000 tonnes, above the previous season's 260,000. Acreage has expanded in China in recent years. India's castor seed output was pegged at 260,000 tonnes, higher than 210,000 tonnes the year before, but down from levels in the mid-1980s. In Brazil, production was 169,000 tonnes, above the previous year, yet below earlier levels.

China, the largest castor seed exporter, was expected to ship 120,000 tonnes in 1988/89, slightly less than in the previous two seasons. Total world

trade was forecast at 174,000 tonnes. Major importers included Brazil, Japan, and West Germany.

The leading exporter of castor oil is Brazil, which was expected to ship 80,000 tonnes in 1988/89. India and China are other major exporters. Total world trade in castor oil was forecast at 160,000 tonnes. Importers include France, the U.S., and the USSR. During the first ten months of 1988/89 (Oct.-Sept.), U.S. castor oil imports totaled 33,850 tonnes, up 26 percent from the year-earlier level.

The average price of castor oil, ex-tank Rotterdam, was \$1,084/tonne in 1988/89, above \$1,049 the previous season. Prices at the beginning of the 1989/90 season averaged \$1,150/tonne.

World Production of Castorseed Beans In Thousands of Metric Tons

Crop Year	China	Brazil	Ecuador	Ethiopia	India	Romania	Paraguay	Israel	Mexico	Pakistan	Thailand	USSR	Philippines	Sudan	World Total
1985-6	280	418	6	1	308	6	38		4	22	33	62	12	1	1,218
1986-7 ¹	235	263	5	1	230	8	39		4	21	36	68	7	1	944
1987-8 ²	330	104	6	1	185	8	44			20	29	66	8	2	828
1988-9 ²	280	146	6		350		49			14	23	60			974
1989-90 ²	275	175			400		45			13	24	51			1,046

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A., "The Oil World."

T.51

Castor Oil Consumption¹ in the United States In Thousands of Pounds

Crop Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1984-5	6,937	5,581	4,178	4,519	5,178	5,930	5,169	7,480	7,158	5,320	5,816	3,839	67,105
1985-6 ²	4,807	3,614	3,840	2,833	5,016	4,935	4,528	5,282	5,602	7,054	6,084	6,111	59,706
1986-7 ²	6,982	5,569	4,743	5,754	5,867	6,251	5,939	6,749	6,984	4,964	3,357	7,078	70,237
1987-8 ²	7,254	7,115	6,943	5,240	6,529	6,984	5,353	6,307	5,457	4,823	7,054	5,466	72,525
1988-9 ²	5,720	6,565	5,018	5,539	4,665	5,424	5,062	4,827	4,914	3,155	5,680	2,644	
1989-90 ²	4,484												

¹ In inedible products (Resins, Plastics, etc.). ² Preliminary. Source: Bureau of the Census.

T.52a

Castor Oil Stocks in the United States¹ In Thousands of Pounds

Crop Year	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1
1984-5	6,998	7,432	5,669	11,734	10,403	11,129	18,518	24,952	19,072	21,623	16,652	16,001
1985-6 ¹	14,632	17,087	28,477	21,031	24,754	25,586	26,263	19,739	30,125	24,740	29,809	26,919
1986-7 ¹	22,212	26,907	31,876	29,376	35,042	30,039	39,369	30,616	40,460	40,821	43,204	41,246
1987-8 ¹	33,738	36,060	31,757	48,027	43,191	37,297	47,945	41,480	37,969	32,051	26,885	16,472
1988-9 ¹	9,614	13,826	15,402	14,448	6,738	9,620	13,256	10,794	13,257	13,934	12,898	9,275
1989-90 ¹	10,201	11,869										

¹ Preliminary. Source: Bureau of the Census.

T.52b

Monthly Average Wholesale Prices of Castor Oil No. 1, Brazilian Tanks at New York In ¢ per Lb.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	78.50	78.50	78.50	78.50	78.50	73.70	69.00	77.30	65.00	65.00	65.00	65.00	72.71
1985	65.00	65.00	65.00	65.00	65.00	36.00	36.00	36.00	36.00	36.00	36.00	34.00	47.92
1986	34.50	34.50	34.50	34.50	33.38	32.25	32.38	32.56	31.70	31.63	32.00	33.00	33.08
1987	32.80	32.25	34.27	36.00	36.00	36.00	42.50	42.50	43.10	44.00	44.00	46.50	39.16
1988	46.50	46.50	52.50	51.38	49.88	49.50	48.75	48.00	48.00	48.00	48.50	49.00	48.88
1989	51.00	51.75	51.90	51.50	51.50	51.50	51.50	51.50	51.50				

Source: Foreign Agricultural Service, U.S.D.A.

T.53

Cattle and Calves

The mid-1989 cattle and calf inventory of 108.6 million head was up fractionally from the year earlier total of 108.5 million, which was the lowest July 1 inventory since data were first collected in 1973. Most of the small increase reflected higher retention of beef and dairy replacement heifers for possible placement in cow herds. Of the total, calves accounted for 40.7 million head, down 4 percent from a year earlier, because of a decline in the calving rate during first-half 1989.

Larger inventories of beef cow replacement heifers since 1986 did not result in any significant rise in beef cow rates. While the number of heifers entering cow herds during second-half 1989 was expected to increase moderately from a year earlier, that was not likely to have much impact on cow herd size as of January 1, 1990. Nearly two-thirds of the cows calve in the first half of the year, and a significant change in herd size would have to occur through higher retention rates during Jan.-Jun. rather than Jul.-Dec.

Feedlot placements normally begin expanding seasonally in July and continue trending higher through October. However, at times during the second half of 1989, negative returns were realized on finished cattle, which were expected to hold down feedlot placements and set the stage for reduced fed cattle supplies into the first quarter of 1990. The latter, if realized, was likely to push the price of slaughter cattle into the low \$80/head area for at least a short period during the quarter.

In 1989, commercial cattle slaughter totaled about 33.9 million head, 3 percent under 1988. Declining fed cattle marketings accounted for the largest share of the drop in slaughter, with an estimated 500,000 head from the year-earlier 26.5 million. Commercial beef production of 22.7 million pounds in 1989 was 3 percent under 1988; the decline was expected to push into first-quarter 1990 with 5.45 million pounds produced, down 1 percent from the like 1989 period. For 1990, early estimates placed beef production at 22.8 million pounds, up from 1989.

Slaughter/beef production relationships, however, have changed significantly over the years, as average dressed carcass weights now run well over the averages in the 1960s. This can result in sharp increases in beef production, even though there may be a decline in slaughter. In 1989, federally inspected carcass weights were near record, partially owing to a higher proportion of fed cattle in the slaughter mix, which may have reflected feedlots falling behind on their marketings. In either case, heavy-weight finished cattle could prove a problem at times and hold prices under expectations, especially with the cattle industry's increasing con-

centration from feedlots to marketing. In 1988, operations with 100 or more beef cows comprised 7 percent of all operations, but accounted for 46 percent of the beef cow inventory. Operations with fewer than 50 cows represented 83 percent of all operations, but only 35 percent of the beef cow inventory. It's expected that the average size of operations will continue to rise, although small beef cow herds will remain an important part of the beef industry. On many farms and ranches, cattle are the only enterprise available to use land that cannot be cropped.

Cattle prices in the first half of 1990 will be tied to: feedlot placement during late 1989, the size of the 1989 feed grain crop, and the economy's buoyancy. As indicated, beef supplies in 1990 should prove only a shade higher than in 1989, and if the economy proves fairly strong, consumer beef demand on a per capita basis is likely to show a good rise. However, retail prices for choice beef may increase by only 1 percent, owing to strong consumption from lower poultry prices. Retail beef prices rose about 9 percent in the second half of the 1980s, but nearly 5 percent of the increase was due to higher value products, as the amount of bone and fat purchased declined.

The U.S. imports live cattle from Mexico and some from Canada. During the first half of 1989, imports totaled 803,000 heads, versus 948,000 in the same 1988 period, with Mexico supplying the bulk. Imports from Canada in 1990 were expected to decline, because of a new slaughter facility near Calgary. New economic programs in Mexico have been a disincentive for Mexican producers to increase herds.

U.S. cattle exports, which go mainly to Mexico, are much smaller than imports and are likely to total less than 300,000 head in both 1989 and 1990. Beef/veal foreign trade is more diverse, but U.S. imports run well ahead of exports. Australia and New Zealand are the major suppliers. U.S. imports declined in 1989 from 2.4 million pounds in 1988, and a further contraction was likely in 1990, owing to intense competition from Japan for Australian beef. U.S. beef exports go principally to Japan. Further export gains were expected in 1990, mostly to Japan and especially for higher quality beef products, like skirt steaks.

Futures Markets

Live cattle futures and options are traded on the Chicago Mercantile Exchange (CME) and the Mid America Exchange. Feeder cattle futures and options are also traded on the CME.

CATTLE AND CALVES

Cattle Supply and Distribution in the United States In Thousands of Head

Year	Cattle & Calves on Farms Jan. 1	Imports	Calves Born	Total Supply	Livestock Slaughter—Cattle and Calves					Deaths on Farms	Exports	Total Disappearance
					Federally Inspected	Commercial	All Commercial	Farm	Total Slaughter			
1983	115,001	921	43,925	159,847	37,614	2,112	39,726	410	40,136	5,494	56	45,686
1984	113,700	753	42,500	156,953	38,910	1,969	40,879	390	41,259	5,464	71	46,794
1985	109,749	836	41,045	151,630	37,933	1,745	39,678	370	40,048	5,046	125	45,219
1986	105,468	1,407	41,141	148,016	39,108	1,588	40,696	350	41,046	4,998	108	46,152
1987	102,000	1,200	40,086	143,286	37,147	1,315	38,462	358	38,792	4,800	131	43,723
1988 ¹	99,524	1,332	40,872	141,728	36,459	1,124	37,583	277	37,860	4,680	321	42,861
1989 ³	99,484				35,109							

¹Preliminary. ²Wholesale and retail. ³Forecast. Source: Economic Research Service, U.S.D.A.

T.56

United States Beef Supply and Utilization

Year	Commercial production	Farm production	Beginning stocks	Imports	Total supply	Exports	Shipments	Military purchases	Ending stocks	Total disappearance	Per capita disappearance	Retail weight per capita	Population
Million Pounds										Pounds		Million	
1985	I 5,692	60	358	420	6,530	82	12	28	334	6,073	25.7	19.0	236.20
	II 5,923	26	334	537	6,820	77	12	31	296	6,405	27.0	20.0	236.80
	III 6,167	25	296	633	7,121	91	12	30	308	6,680	28.1	20.8	237.40
	IV 5,775	60	308	481	6,624	78	15	26	317	6,188	26.0	19.2	237.90
Year	23,557	171	358	2,071	26,157	328	51	115	317	25,347	106.9	79.1	237.00
1986	I 5,769	55	420	502	6,745	102	13	24	395	6,236	25.9	18.9	240.7
	II 6,246	24	395	482	7,147	83	12	33	427	6,626	27.5	20.1	241.2
	III 6,273	24	427	640	7,364	144	14	30	385	6,820	28.2	20.6	241.8
	IV 5,925	55	385	505	6,871	193	13	23	412	6,253	25.8	18.8	242.4
Year	24,213	158	420	2,129	26,920	521	52	110	412	25,935	107.4	78.4	241.6
1987	I 5,754	56	412	543	6,764	127	14	32	411	6,213	25.6	18.1	242.9
	II 5,737	25	411	627	6,800	136	13	23	337	6,315	25.9	18.4	243.4
	III 6,084	24	337	681	7,106	159	14		381	6,552	26.8	19.0	243.9
	IV 5,850	56	381	418	6,705	183	12		386	6,125	25.0	17.8	244.5
Year	23,405	161	412	2,269	26,247	604	52	104	386	25,205	103.3	73.4	243.8
1988 ¹	I 5,700	58	386	703	6,847	134	16		419	6,294	25.6	18.0	245.2
	II 5,784	25	419	668	6,896	155	15		332	6,409	26.1	18.4	
	III 6,185	24	332	585	7,126	188	15		409	6,529	26.5	18.7	
	IV 5,755	58	409	423	6,645	203	15		422	6,020	24.3	17.2	
Year	23,424	165	386	2,379	26,354	680	61		422	25,252	102.5	72.3	246.0
1989 ²	I 5,529	58	422	566	6,575	212	15		397	5,966	24.1	17.0	
	II 5,777	25	397	533	6,732	271			322	6,139	24.7	17.4	
	III 5,892	24	322	524	6,762	284			307	6,171	24.8	17.5	
Year ²	22,983	165	422	2,125	25,695	1,067	60		325	24,303	97.8	68.9	

¹Preliminary. ²Forecast. Source: Economic Research Service, U.S.D.A.

T.56b

U.S. Cattle on Feed in 13 States, Quarterly In Thousands of Head

Year	Number on Feed ¹	Placed on Feed	Mark- etings	Other Disap- pearance	Year	Number on Feed ¹	Placed on Feed	Mark- etings	Other Disap- pearance
1986	9,754	23,583	22,856	1,236	1988 ²	9,769	24,353	23,339	1,375
I	9,754	5,270	5,763	316	I	9,769	5,824	5,823	385
II	8,945	5,221	5,821	375	II	9,385	5,893	5,859	418
III	7,970	6,336	5,876	233	III	9,001	5,986	6,171	225
IV	8,197	6,756	5,396	312	IV	8,591	6,650	5,486	347
1987	9,245	24,894	22,971	1,379	1989 ²	9,408			
I	9,245	5,680	5,747	371	I	9,408	6,212	5,598	344
II	8,807	5,906	5,619	428	II	9,678	5,177	5,985	415
III	8,666	6,590	6,022	242	III	8,455	5,689	5,856	227
IV	8,992	6,718	5,603	338	IV	8,061		5,370	

¹Beginning of period. ²Preliminary. Source: Economic Research Service, U.S.D.A.

CATTLE AND CALVES

World Cattle and Buffalo Numbers as of January 1 In Millions of Head

Year	Argentina	Australia	Brazil	Canada	China	Colombia	France	W. Germany	India	Poland	Turkey	Mexico	South Africa	USSR	Un. Kingdom	United States	World Total
1982	57.9	24.6	93.0	12.1	N.A.	24.2	23.5	15.0	260.0	11.5	17.0	34.7	13.1	115.9	13.0	115.4	959
1983	58.0	22.5	93.0	11.7	76.1	24.0	23.7	15.1	263.7	11.0	16.5	33.9	12.5	117.2	13.2	115.0	1,033
1984	54.4	22.2	93.3	11.6	78.1	21.7	23.5	15.6	267.5	11.1	16.0	33.9	12.1	119.6	13.1	113.7	1,033
1985	54.7	22.8	94.7	11.3	82.6	21.2	23.1	15.7	271.4	10.9	15.5	33.9	12.0	121.1	13.0	109.7	1,041
1986	53.5	23.4	95.2	11.0	86.8	19.9	22.8	15.6	275.3	10.8	15.0	32.2	11.8	120.9	12.7	105.5	1,039
1987	51.7	23.5	97.0	10.8	91.7	18.8	22.2	15.3	273.6	10.5	14.5	33.6	12.0	122.1	12.5	102.0	1,038
1988	50.8	23.5	98.3	10.9	94.7	18.4	21.1	14.9	264.9	10.2	14.0	35.4	12.2	120.6	11.8	99.5	1,026
1989 ²	50.3	24.3	98.3	11.0	98.0	17.6	19.6	14.7	269.2	10.1	13.4	35.0	12.7	119.6	11.9	99.5	1,029
1990 ¹	50.1	25.3	100.3	11.1	101.4	16.8	18.8	14.6	273.5	10.3	12.8	31.9	13.2	120.2	12.0	100.1	1,035

¹ Forecast. ² Preliminary. Source: Foreign Agricultural Service, U.S.D.A.

T.54

U.S. Cattle on Feed in 7 States In Thousands of Head

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1983	8,316	8,052	7,604	7,268	7,221	7,331	7,278	6,861	6,704	6,951	7,683	7,814
1984	8,006	7,917	7,515	7,568	7,376	7,318	7,125	6,811	6,747	7,442	8,221	8,544
1985	8,635	8,169	7,877	7,814	7,495	7,444	7,057	6,404	6,155	6,461	7,582	7,892
1986	7,920	7,664	7,322	7,293	7,107	7,096	6,543	6,331	6,404	6,811	7,546	7,826
1987	7,643	7,304	7,163	7,232	7,233	7,560	7,193	6,693	6,818	7,535	8,364	8,412
1988	8,066	7,869	7,587	7,746	7,519	7,819	7,431	6,855	6,689	7,144	7,934	8,000
1989 ¹	7,765	7,700	7,661	8,012	7,847	7,555	7,010	6,568	6,431	6,748	7,731	8,126

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.54a

U.S. Cattle Placed on Feedlots in 7 States In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	1,509	1,179	1,394	1,566	1,843	1,595	1,174	1,582	2,003	2,358	1,711	1,736	19,744
1984	1,566	1,301	1,764	1,515	1,798	1,445	1,323	1,680	2,265	2,546	1,945	1,624	20,772
1985	1,449	1,342	1,594	1,417	1,666	1,267	1,078	1,510	1,988	2,779	1,776	1,540	19,346
1986	1,581	1,220	1,650	1,565	1,756	1,162	1,544	1,802	2,103	2,403	1,814	1,435	20,035
1987	1,591	1,442	1,719	1,681	1,984	1,422	1,274	1,915	2,429	2,604	1,609	1,340	21,040
1988	1,660	1,379	1,848	1,521	2,165	1,377	1,246	1,660	2,169	2,475	1,680	1,401	20,584
1989 ¹	1,711	1,585	1,975	1,534	1,619	1,268	1,311	1,618	1,928				

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.54b

U.S. Cattle Marketings in 7 States In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	1,522	1,413	1,547	1,414	1,413	1,510	1,482	1,689	1,575	1,527	1,485	1,430	18,007
1983	1,643	1,506	1,593	1,470	1,583	1,570	1,497	1,651	1,682	1,626	1,459	1,425	18,701
1984	1,569	1,621	1,594	1,523	1,637	1,544	1,553	1,683	1,489	1,657	1,501	1,414	18,785
1985	1,782	1,540	1,559	1,603	1,589	1,572	1,670	1,670	1,603	1,573	1,380	1,401	18,989
1986	1,750	1,470	1,593	1,631	1,635	1,648	1,692	1,659	1,637	1,587	1,447	1,514	19,263
1987	1,803	1,478	1,561	1,541	1,514	1,702	1,703	1,722	1,641	1,700	1,478	1,567	19,410
1988	1,754	1,535	1,583	1,609	1,724	1,697	1,760	1,760	1,647	1,601	1,507	1,521	19,698
1989 ¹	1,672	1,509	1,549	1,570	1,747	1,751	1,690	1,679	1,564	1,628	1,500		

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.54c

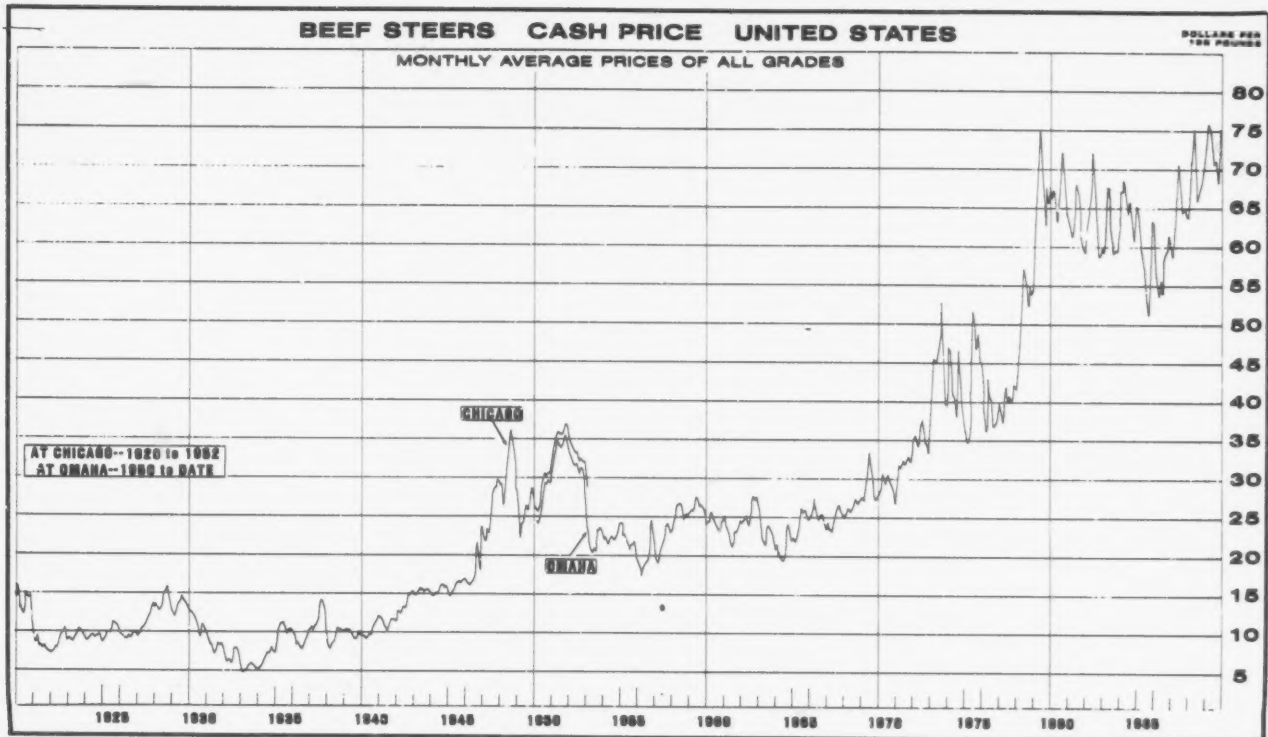
Condition¹ of Pasture and Range Feed in the United States, on First of Month In Percent of Normal

Year	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Year	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1
1984	75	79	80	75	70	66	74	1987	81	84	82	78	76	79	71
1985	83	81	77	70	75	76	79	1988	73	68	46	51	54	60	59
1986	76	80	83	76	79	83	85	1989	68	74	77	73	73	74	70

¹ Indicates current supply of feed for grazing on non-irrigated pastures & ranges relative to that expected from existing stands under very favorable weather conditions. [80 & over, good to excellent; 65-79, poor to fair; 50-64, very poor; 35-49, severe drought; under 35, extreme drought.] Source: Statistical Reporting Service, U.S.D.A.

T.57A

CATTLE AND CALVES



Average Wholesale Prices of Beef Steers at Omaha, Choice (900-1100 Lbs.) In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	67.08	67.07	68.60	67.86	65.89	64.28	65.79	64.36	62.68	60.85	64.24	65.32	65.33
1985	64.35	62.80	59.58	58.72	57.58	56.69	53.26	51.94	51.29	58.02	63.30	62.94	58.37
1986	59.69	56.42	55.55	53.69	55.79	54.08	58.27	59.04	59.43	59.73	61.54	59.82	57.74
1987	58.79	61.02	61.58	66.30	70.66	68.83	65.80	64.50	64.81	64.81	64.20	63.93	64.60
1988	65.00	68.31	71.53	72.71	75.15	70.58	65.96	67.08	67.71	69.13	70.07	71.21	69.58
1989	72.35	72.92	75.81	75.31	74.52	71.71	70.74	71.09	68.44	69.69	72.48	75.21	72.52

Source: Economic Research Service, U.S.D.A.

T.65

Average Prices of Steers (Stocker & Feeder) Kansas City In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	64.39	65.97	66.30	64.15	60.82	59.28	62.17	61.34	62.01	62.74	63.96	64.26	63.11
1985	66.00	67.02	66.66	66.06	64.25	59.11	57.43	57.81	56.27	59.12	60.05	62.04	62.08
1986	61.34	61.68	59.99	56.68	62.21	53.69	57.98	62.20	61.51	61.94	62.77	62.83	60.38
1987	65.75	69.01	68.47	70.56	70.53	70.21	71.22	75.31	77.10	73.21	74.92	73.69	71.32
1988	80.26	81.64	83.12	82.61	78.99	70.77	74.14	79.45	79.89	82.99	81.31	80.99	80.50
1989	82.02	82.91	80.98	78.58	78.25	79.08	81.64	84.54	83.56	81.24	82.65	82.30	81.48

Source: Economic Research Service, U.S.D.A.

T.61

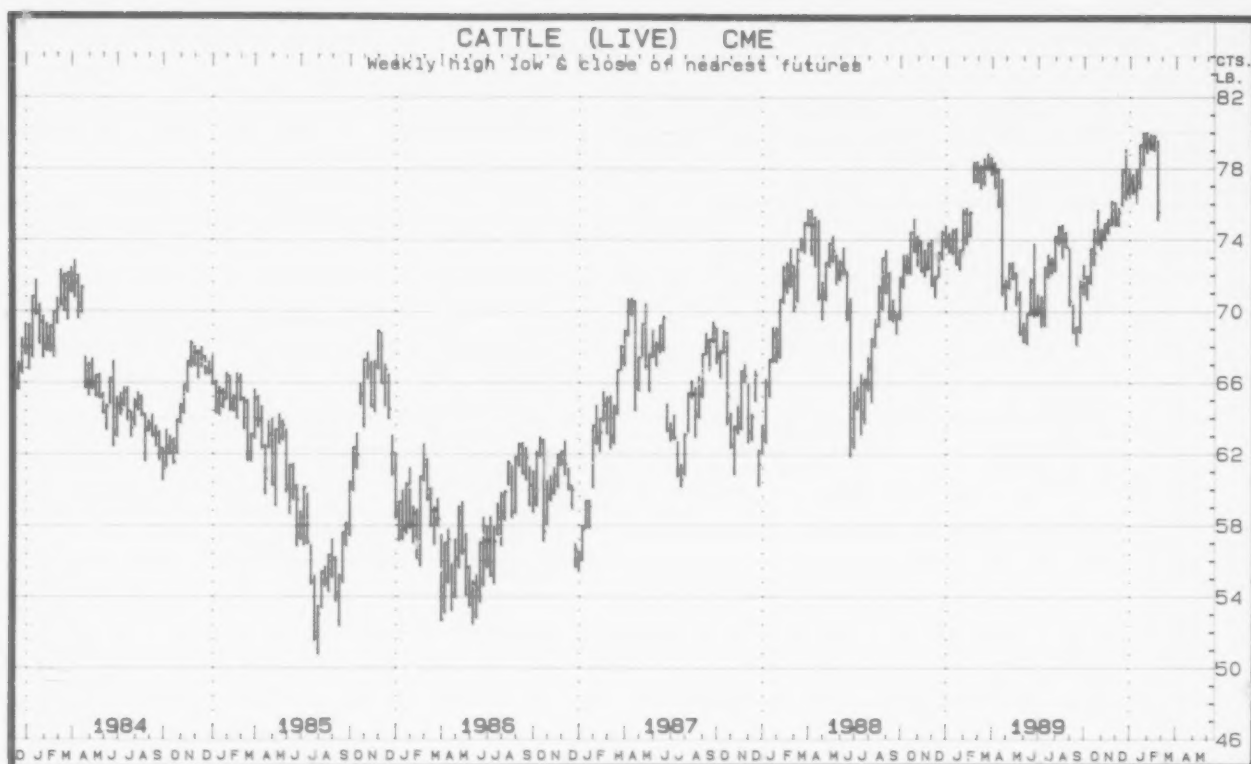
Federally Inspected Slaughter of Cattle in the United States In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	3,134	2,661	2,761	2,848	3,052	2,774	3,023	3,089	2,877	3,097	2,669	2,778	34,765
1986	3,204	2,613	2,726	3,096	3,123	3,017	3,213	3,101	3,019	3,164	2,693	2,944	35,913
1987	3,084	2,564	2,805	2,875	2,780	2,945	3,009	2,972	2,977	3,024	2,640	2,793	34,468
1988 ¹	2,832	2,679	2,812	2,707	2,830	2,983	2,897	3,120	2,927	2,871	2,698	2,685	34,048
1989 ¹	2,711	2,500	2,744	2,576	2,947	2,951	2,730	2,975	2,706	2,876	2,693		

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.66

CATTLE AND CALVES



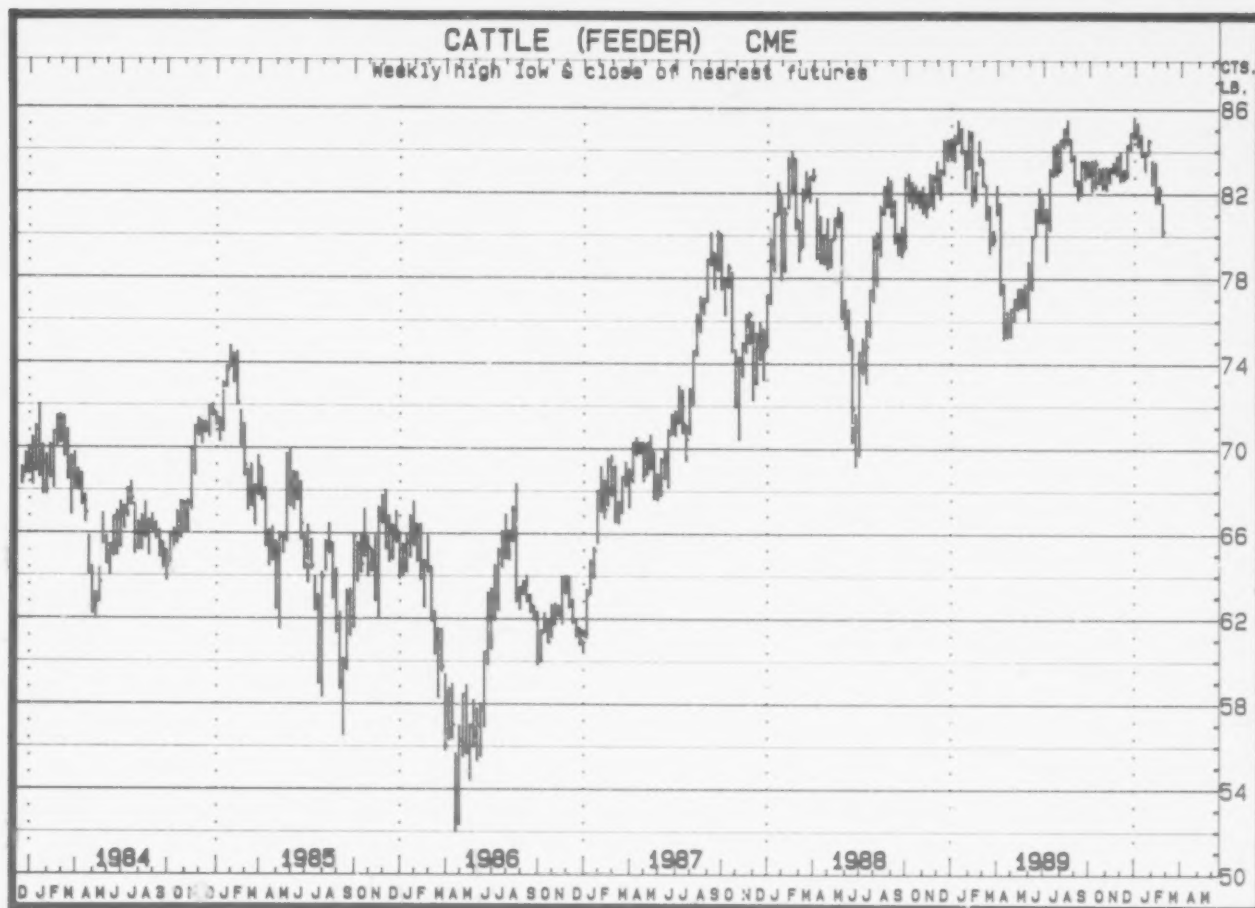
High, Low & Closing Prices of June Live Beef Cattle Futures at Chicago In Cents per Pound

Year of Delivery	Year Prior to Delivery										Delivery Year				Life of Delivery Range	
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May		June
1983 High	—	65.50	63.30	64.55	63.72	63.25	62.50	61.80	62.00	63.90	66.47	69.77	71.15	68.05	67.70	71.15
Low	—	63.90	60.00	60.50	61.77	58.40	58.02	59.52	58.55	60.75	62.90	64.80	65.10	64.30	65.75	58.02
Close	—	64.10	62.75	62.85	62.30	59.27	59.62	60.80	61.10	62.72	65.27	69.62	66.12	66.05	66.85	—
1984 High	—	—	62.25	64.65	66.55	65.70	65.55	66.30	67.65	68.35	69.35	69.85	69.70	67.35	67.25	69.85
Low	—	—	61.35	61.10	62.95	63.00	63.20	63.60	65.05	65.45	65.10	67.00	65.62	64.60	63.32	61.10
Close	—	—	61.80	64.15	63.25	64.90	63.75	65.45	67.05	66.05	69.10	68.70	66.17	64.62	66.05	—
1985 High	—	—	66.55	67.35	67.40	67.70	67.10	68.15	68.10	69.00	69.50	67.75	66.92	64.27	61.47	69.50
Low	—	—	66.00	65.00	65.00	65.70	65.20	66.30	66.50	66.35	66.55	64.60	62.32	59.05	56.80	56.80
Close	—	—	66.55	65.00	67.37	66.40	66.75	67.70	67.85	68.35	67.37	67.20	62.65	60.10	56.80	—
1986 High	—	56.60	66.05	64.55	62.75	62.25	63.40	62.45	63.05	63.15	62.50	60.52	57.55	59.35	57.10	66.60
Low	—	65.60	63.00	58.10	59.10	56.25	60.00	59.90	60.15	58.65	57.40	58.20	53.17	53.40	52.42	52.42
Close	—	65.90	63.35	60.20	59.60	62.22	61.47	62.42	61.40	61.97	61.37	58.25	57.20	54.07	56.97	—
1987 High	57.50	57.00	57.95	60.00	58.75	59.25	57.45	58.07	57.50	61.17	62.50	64.35	67.25	70.45	69.75	70.45
Low	53.35	53.70	53.30	55.85	57.00	56.30	55.25	56.50	54.90	55.67	59.45	59.80	62.75	65.47	66.90	53.30
Close	56.35	54.20	55.60	58.30	58.75	56.82	57.05	57.20	55.55	61.02	62.40	63.42	67.20	67.67	69.62	—
1988 High	63.20	65.00	64.90	64.90	68.40	69.65	68.20	65.32	65.92	68.90	71.25	72.50	72.37	74.22	73.57	74.22
Low	61.20	62.10	62.30	62.60	63.67	67.22	60.60	60.80	62.00	65.30	66.70	67.37	68.60	70.60	69.47	60.60
Close	63.20	62.40	64.40	64.45	68.15	67.32	62.52	63.77	65.50	66.85	68.40	70.87	70.90	72.15	70.60	—
1989 High	69.20	70.90	75.05	75.20	74.80	74.60	74.90	74.00	74.92	75.67	75.90	75.25	73.37	72.80	73.85	75.90
Low	68.60	69.00	69.50	71.85	71.55	72.30	73.25	71.80	71.32	72.50	73.35	72.82	70.10	68.50	68.15	68.15
Close	69.20	69.80	73.75	73.05	74.10	73.77	73.87	72.20	74.17	75.40	75.05	73.02	71.45	68.90	73.72	—
1990 High	—	72.40	72.90	73.25	73.45	72.50	72.55	72.37	72.25	—	—	—	—	—	—	—
Low	—	69.75	69.97	70.60	71.55	70.85	71.10	70.55	71.05	—	—	—	—	—	—	—
Close	—	69.80	71.05	72.25	71.87	71.25	72.00	71.57	71.87	—	—	—	—	—	—	—

Source: Chicago Mercantile Exchange

T.62

CATTLE AND CALVES



Month-End Open Interest of Live Beef Cattle Futures at Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	49,014	56,500	59,992	59,771	58,548	47,307	42,292	49,524	52,174	48,215	49,014	51,629
1984	54,669	57,351	59,793	50,190	44,142	41,790	38,689	37,064	38,416	45,984	64,085	57,242
1985	58,769	57,744	63,236	57,324	56,216	49,594	45,674	48,583	50,888	65,037	68,592	59,361
1986	53,559	55,203	52,551	52,245	55,736	58,420	66,835	64,662	60,580	57,668	64,658	56,421
1987	74,535	91,671	89,788	90,237	94,846	81,881	75,265	85,244	87,859	74,625	75,523	71,804
1988	82,663	101,448	106,864	88,267	90,617	83,150	76,716	84,750	72,772	81,758	79,862	75,383
1989	83,045	89,957	87,894	81,773	75,717	71,590	81,402	78,034	66,848	69,406	73,017	76,325

Source: Chicago Mercantile Exchange

T.64

Volume of Trading of Live Beef Cattle Futures at Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	370.4	332.7	455.8	489.0	389.1	328.9	302.2	324.9	344.1	335.4	297.9	277.9	4,248.2
1984	457.4	397.6	404.2	323.2	256.4	215.5	265.3	202.6	181.0	245.9	345.7	258.5	3,553.3
1985	340.7	290.3	327.9	304.3	412.0	317.2	440.5	370.2	400.2	445.3	405.0	383.8	4,437.3
1986	492.6	381.0	408.2	462.1	424.2	374.5	448.7	373.0	387.1	376.9	289.4	273.0	4,690.5
1987	376.6	426.7	474.2	456.6	523.7	357.8	394.8	412.7	485.8	580.4	363.1	377.0	5,229.3
1988	425.1	455.6	543.9	468.0	467.8	571.3	463.4	511.8	415.0	417.5	383.9	353.9	5,477.2
1989	452.9	357.7	409.0	404.2	382.9	370.3	327.9	331.9	376.9	345.4	266.2	240.2	4,265.7

Source: Chicago Mercantile Exchange

T.63

CATTLE AND CALVES

Beef Steer-Corn Price Ratio at Omaha¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1985	24.8	24.1	22.2	21.5	21.5	21.0	20.4	21.7	21.8	25.7	27.8	26.7	23.3
1986	25.6	24.4	24.0	22.9	23.0	22.3	28.9	36.7	42.1	42.7	39.7	38.8	31.0
1987	40.8	43.9	41.9	42.2	40.2	38.9	41.4	43.9	42.1	41.4	38.4	36.7	41.0
1988 ²	36.4	37.4	38.4	39.3	38.6	27.9	24.5	26.2	26.4	26.4	28.4	27.9	31.5
1989 ²	28.2	28.7	29.4	30.2	29.4	28.9	29.6	32.0	30.8	31.1	32.2	32.8	30.3

¹ Bushels of No. 2 yellow corn equal in value to 100 pounds liveweight of choice slaughter steers, 900-1100 lbs. ² Preliminary.

Source: Economic Research Service, U.S.D.A.

T.56c

U.S. Farm Value, Income & Wholesale Prices of Cattle & Calves

Year	Farm Value of All Cattle—Jan. 1		Gross Income From C. & C. ²	At Omaha						Feeder Steers All Weights at K.C.	Cows, Utility Omaha	Vealers, Choice So. St. Paul	Cows, Commercial Omaha	Beef, Dressed (Carlots)—Cow ⁵ Carners ⁶		
	Per Head \$	Total Million \$		Prime	Steers ³	Grid	Heifers	Choice	Steer, Choice					Heifer, Choice		
					Choice		Choice									
Dollars Per 100 Pounds																
1982	415	47,967	30,390	N.A.	64.22	59.47	59.82	62.79	39.96	77.70	40.35	101.68	98.54	78.96		
1983	406	46,769	29,240	N.A.	62.52	56.99	58.53	61.42	61.39	39.35	72.97	39.40	97.87	94.45	78.48	
1984	396	44,976	31,219		65.34	59.14	61.18	64.59	63.11	39.81	63.98	40.75	100.17	96.62	74.70	
1985	402	44,139	29,536		58.37	53.28	55.52	58.24	62.08	38.32	58.28	37.91	90.68	88.48	74.13	
1986	391	41,280	29,376		57.74	52.04	54.76	57.56	60.38	37.22	59.92	36.96	89.00	87.72	71.31	
1987 ¹	407	41,483	34,316		64.60	58.53	61.48	64.34	71.32	44.83	78.92	44.84	97.24	96.21	83.70	
1988 ¹	528	51,808			69.58		69.44		80.50	227.67 ⁷	45.80	103.10	102.80	87.80		
1989 ¹					72.52		72.90		81.48	248.62 ⁷	47.28	107.80	107.70	94.40		

¹ Preliminary. ² Excludes interfarm sales & Gov't. payments. Cash receipts from farm marketings + value of farm home consumption.

³ Weighted average prices of beef steers, sold out of first hands for slaughter. ⁴ All weights. ⁵ & cutter. ⁷ Price is per head.

Source: Statistical Reporting Service, U.S.D.A.

T.60

Average Price Received by Farmers for Beef Cattle In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average ¹
1983	54.30	57.10	59.70	61.00	59.90	58.30	55.80	54.20	52.30	51.70	51.20	54.50	55.50
1984	57.20	59.70	61.70	60.10	58.60	57.60	57.60	56.60	55.70	54.10	54.80	57.00	57.30
1985	57.40	58.50	57.30	56.20	55.30	53.60	50.20	49.40	49.10	52.10	54.70	53.70	53.70
1986	53.20	53.00	52.40	50.30	51.00	50.10	52.90	54.40	54.60	54.40	54.60	53.20	52.60
1987	56.40	58.80	59.30	62.60	63.00	62.50	61.10	61.90	63.70	62.90	62.00	62.20	61.10
1988	65.40	67.40	68.30	69.00	69.30	65.00	63.20	65.90	67.20	67.00	66.70	67.20	66.80
1989 ²	70.60	71.50	72.00	70.00	68.80	67.60	68.00	69.70	68.20	68.70	69.80	71.00	69.70
1990 ²	71.60												

¹ Weighted average by quantities sold. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.68

Average Price Received by Farmers for Calves In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average ¹
1983	62.40	66.50	68.40	66.70	66.20	64.30	60.30	57.40	56.10	57.20	59.40	60.60	61.70
1984	61.10	63.90	63.70	62.30	60.80	59.20	59.10	59.10	56.60	58.20	59.40	59.40	59.90
1985	64.10	65.40	65.90	65.40	65.60	62.60	60.00	61.40	58.30	60.20	61.40	58.80	62.10
1986	60.10	62.70	61.90	58.90	58.00	58.10	59.40	61.10	63.40	62.70	62.20	62.20	61.10
1987	66.40	70.60	72.50	75.10	77.40	78.80	80.30	82.30	85.90	81.40	82.90	83.00	78.50
1988 ²	88.20	92.60	93.50	93.20	93.40	84.90	87.70	91.00	89.50	87.80	87.80	88.60	89.90
1989 ²	92.80	95.90	94.00	90.50	91.20	94.20	94.70	94.20	91.10	88.10	86.70	89.10	91.90
1990 ²	90.20												

¹ Weighted average by quantities sold. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.69

Federally Inspected Slaughter of Calves & Vealers in the U.S. In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	270	236	261	252	246	221	274	272	271	298	268	298	3,168
1986	289	256	276	284	257	240	281	262	263	276	238	272	3,195
1987 ¹	248	225	251	215	189	214	220	202	229	233	211	242	2,679
1988 ¹	205	203	216	169	171	204	207	227	207	197	202	203	2,411
1989 ¹	196	175	194	152	157	161	169	189	173	191	175	167	2,099

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.67

Cement

U.S. cement production in 1989 was expected to fall to 77 million tons, and apparent consumption was likely to decline to 90 million tons. The gap between domestic production and demand continued to be filled by imports. Imports were expected to be about 18 percent of apparent consumption. There was a continuing trend toward consolidation of the industry through acquisition of companies and plants by larger firms, most of which were foreign owned.

Total U.S. demand for cement in 1988 was about 92 million tons. Domestic cement shipments fell in the northeastern and southern U.S., while the north-central and western regions showed modest

increases. Finished portland and clinker production capacity utilization in 1988 increased to 80 percent and 85 percent, respectively.

By the end of 1988, about 65 percent of cement production capacity was owned by foreign companies. To increase efficiency and economy of energy use, cement producers continued to introduce state-of-the-art technology in plant modernization and expansion programs, including high-efficiency separators and high-pressure rollers.

Portland cement shipments in the U.S. and Puerto Rico through August 1989 were slightly below levels in 1988. U.S. imports through July 1989 were 3 percent below the previous year.

World Production of Hydraulic Cement by Selected Countries In Millions of Short Tons

Year	Rep. of Korea	Brazil	Canada	China	France	West Germany	India	Italy	Japan	Poland	Spain	South Africa	Turkey	United Kingdom	United States	USSR	World Total
1983	23.5	23.0	8.7	119.3	27.0	33.6	28.0	43.2	89.2	17.9	33.8	8.7	15.0	14.8	71.3	141.3	1,010.1
1984	22.5	21.8	9.5	133.5	25.0	31.9	32.0	41.6	86.9	18.4	28.0	9.0	17.3	14.9	78.7	143.5	1,036.4
1985	22.5	22.7	11.2	157.1	26.0	28.4	36.4	40.4	80.3	16.5	26.7	7.8	19.4	14.7	78.9	144.1	1,056.7
1986	25.8	27.9	11.7	178.0	25.9	29.3	40.1	39.0	78.5	17.4	26.5	6.9	22.1	14.8	79.9	148.9	1,100.8
1987 ¹	28.3	28.1	13.9	198.0	26.0	27.9	40.8	39.9	77.0	17.7	25.8	6.8	24.2	14.8	79.5	150.0	1,138.7
1988 ²				224.0	26.0	28.0	44.0	41.0	85.0		26.0				78.3	153.0	1,212.0
1989 ²				230.0	27.0	28.0	45.0	42.0	87.0		27.0				79.0	155.0	1,236.0

¹ Preliminary. ² Estimate. Source: Bureau of Mines

T.70

Salient Statistics of Cement in the United States

Year	Net Import Reliance as a % of Apparent Consumption	Production			Capacity Used ³ %	Shipments From Mills ⁴		Average Value (F.O.B. Mill) \$ per Ton	Stocks at Mills Dec. 31	Imports ⁵ Exports ⁵		Apparent Consumption	Raw Materials Used in Producing Portland Cement				Total (All)
		Portland	Others ²	Total		Total Mil. Tons	Value \$ Mil.			Imports ⁵ Million Tons	Exports ⁵ Million Tons		Cement Rock	Lime-stone ⁶	Clay & Shale	Gypsum & Anhy. Dr.	
1983	6	67.5	2.9	70.4	64.6	70.9	3,534	49.95	6.7	4.2	.1	73.4	21.6	73.1	8.7	3.5	113.5
1984	10	74.4	3.3	77.7	71.8	80.2	4,152	51.80	6.9	8.7	.1	84.3	27.0	78.5	9.1	4.0	124.8
1985	16	74.6	3.3	77.9	73.0	83.0	4,286	51.61	7.2	14.1	.1	87.5	24.3	77.6	8.8	4.0	121.4
1986	18	75.2	3.6	78.8	73.7	87.6	4,408	50.32	6.7	16.1	.1	91.5	23.5	79.0	9.0	4.1	122.2
1987	19	74.6	3.6	78.2	73.6	89.1	4,394	49.29	6.2	17.5	.1	93.9	18.0	81.1	9.7	4.9	119.9
1988 ¹	19			76.9		89.0		49.10	6.0	17.4	-.1	93.3					
1989 ⁷	17			77.8		86.4		50.00	5.9	16.5	-.5	92.0					

¹ Preliminary. ² Masonry, natural & pozzolan (slag-line). ³ At Portland-cement mills. ⁴ Value received f.o.b. mill, excluding cost of containers. ⁵ Hydraulic & clinker cement. ⁶ Including oyster shells. ⁷ Estimate. Source: Bureau of Mines

T.71

Average Price of Bulk Cement in 20 Cities In Dollars per Short Ton

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1987	63.28	63.25	63.66	63.50	63.50	64.35	64.25	64.25	63.73	63.73	63.73	63.73	63.75
1988	64.08	64.07	64.44	65.01	65.02	66.39	65.45	65.48	64.42	64.27	64.17	63.71	64.71
1989	63.48	63.53	63.53	63.97	63.14	63.14	63.24	63.34					

Source: Bureau of Labor Statistics

T.74

Shipments of Finished Portland Cement from Mills in the United States In Millions of Barrels³

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total ¹
1986	28.9	23.7	32.3	41.5	43.2	44.8	46.9	46.6	45.9	49.1	35.1	30.7	470.5
1987 ²	25.5	24.9	34.1	41.5	43.2	47.8	49.3	45.6	47.6	50.0	38.3	30.8	481.2
1988 ²	21.0	26.3	36.4	39.9	45.4	50.1	43.8	49.6	47.6	47.3	39.8	32.5	478.0
1989 ²	27.2	23.1	33.8	39.3	44.6	47.1	43.8	51.8					

¹ Does not necessarily agree with monthly figures. These are compiled from producers' annual reports and are final. ² Preliminary ³ A barrel is approx. 376 pounds. Source: Bureau of Mines

T.73

Cheese

The 1988 drought slowed growth in U.S. milk production by increasing grain and forage costs. Milk production in third-quarter 1989 fell by 6 percent from the previous quarter, but was only 1 percent lower than third-quarter 1988. While the Dairy Termination Program reduced the size of the cow herd, this resulted in the elimination of low-yielding herds.

In the 21 top producing states, milk output per cow over Jul.-Sept. 1989 averaged 1,185 pounds, compared to 1,192 in the same 1988 quarter and 1,168 in 1987. With cheaper grain, more feeding of concentrates was likely to result in a rebound in yields.

Milk marketings in 1989 were forecast at 143.5 billion pounds, near 143.3 billion in 1988. The average fat content of 1988 milk was 3.67 percent, up from 3.65 percent in 1987 and the highest since 1975. Of the total milk supply, use for cheese accounts for about 30 percent.

Over the Jan.-Aug. 1989 period, American cheese production totaled 1.83 billion pounds, 3 percent less than in the same period of 1988. Production of other cheeses was 1.91 billion, 5 percent more than in the same 1988 period. Cottage cheese output was 603 million pounds, down about 7 percent from the 1988 period.

Production of American cheese in 1988 was 2.76 billion pounds, up 1 percent from 1987, while production of other cheeses was 2.81 billion pounds, 7 percent more than in 1987.

USDA projected that 1989 commercial use of milk and dairy products would reach another record. American cheese sales during Jun.-Aug. 1989 were up about 4 percent from a year earlier, while use of other varieties was 7 percent higher.

Commercial stocks of American cheese on September 1, 1989 were 284 million pounds, up 3 percent from 1988, but 15 percent less than in 1987. Commercial stocks of other cheese on September 1 were 117 million pounds, 7 percent more than in 1988 and 21 percent more than in 1987.

American cheese makers were unable to attract enough milk to meet demand and to rebuild stocks. Government stocks of American cheese on September 1 fell to 12.3 million pounds, down sharply from 102.2 million in 1988 and 188.1 million in 1987.

During the Jan.-Sept. 1989 period, Commodity Credit Corporation (CCC) removals of American cheese were 37.4 million pounds, down from almost 230 million in Jan.-Sept. 1988. Uncommitted CCC inventories of American cheese on October 1, 1989 were nonexistent. In October 1988, they were 44 million pounds, and in October 1986 they totaled 559 million pounds.

Over Jan.-Sept. 1989, the average price of cheddar cheese at Wisconsin assembly points was 131.04 cents per pound. In 1988, prices averaged 123.80 cents.

World cheese production in 1989 was expected to reach 10.6 million tonnes, up about 1 percent from 1988 with higher U.S. and Soviet output.

World Cheese (Total¹) Production In Millions of Metric Tons

Year	Argentina	Australia	Brazil	Canada	Mexico	Czechoslovakia	Denmark	France	West Germany	Italy	Netherlands	New Zealand	USSR	Sweden	Switzerland	United Kingdom	United States
1982	229	153	220	170	230	120	245	1,200	446	645	481	112	699	108	129	244	2,060
1983	245	158	200	183	230	123	249	1,245	446	656	485	114	744	115	135	244	2,186
1984	239	161	200	192	188	130	293	1,287	465	661	515	110	780	116	130	245	2,120
1985	210	160	205	213	187	131	253	1,300	495	684	522	118	809	109	126	260	2,305
1986	256	170	185	226	262	134	252	1,320	530	694	534	127	844	106	131	256	2,363
1987	277	177	195	246	298	142	271	1,342	553	704	552	113	861	107	128	263	2,424
1988 ²	265	176	200	252	370	140	258	1,378	585	737	559	128	890	115	134	299	2,527
1989 ³	281	185	205	260	373	140	262	1,440	600	700	560	124	920	109	135	295	2,570

¹ Farm & factory production. ² Preliminary. ³ Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.75

Supply and Distribution of All Cheese in the United States In Millions of Pounds

Year	Production		Supply Jan. 1 Commercial Stocks	Imports ⁴	Total Supply	Cheese 40-Lb. Blocks Wisc. Assembly Points c per lb.	Exports & Shipments ⁵	Gov't.		Distribution Am. Cheese Removed by U.S.D.A. Programs	Total Disap.	Domestic Disapp.		
	Whole Milk ²	All Cheese ³						Jan. 1 Stocks	Dec. 31 Stocks			Military	Civilian	Per Capita
1982	2,752	4,542	976	269	5,677	138.27	100	515	647	643	4,722	15	4,607	19.88
1983	2,928	4,820	1,064	286	6,171	138.28	87	647	793	833	4,905	18	4,798	20.52
1984	2,648	4,674	1,266	306	6,246	137.96	108	793	621	447.3	5,184	—	5,076	21.42
1985	2,855	5,081	1,062	303	6,441	127.72	125	621	544	629.0	5,501	—	5,376	22.47
1986	2,798	5,209	945	295	6,449	127.30	99	543.7	420	468.4	5,660	—	5,560	23.02
1987	2,717	5,345	789	265	6,399	123.19	89	420.1	81.2	282.0	5,937	—	5,850	24.01
1988 ¹	2,757	5,572	460	252	6,284	123.80	80	81.2	40.0	238.1	5,886	—	5,806	23.57
1989 ⁶	2,681	5,571	398			138.79		40.0		37.4				

¹ Preliminary. ² Whole milk American cheddar. ³ All types of cheese except cottage, pot and baker's cheese. ⁴ Imports for consumption. ⁵ Commercial. ⁶ Estimate. Source: Department of Agriculture

T.76

CHEESE

Cheese Production in the United States In Millions of Pounds

Year	American			Swiss, Including Block	Mun- ster	Baick	Lim- burger	Neuf- cha- tel	Cream Cheese	Italian Vari- eties	Blue mold	All Other Vari- eties	Total of All Cheese ²	Cottage Cheese		
	Whole Milk	Part Skim	Total											Low- Fat	Curd ⁴	Cream- ed ⁵
1980	2,376	5.4	2,381	218.9	70.0	15.4	1.6	4.3	224.3	982.7	33.0	52.9	3,984	179.8	667.4	825
1981	2,642	5.9	2,648	214.4	67.4	13.9	1.2	—241.3—	—	994.4	30.2	66.6	4,278	208.3	647.5	773
1982	2,752	6.9	2,759	221.1	71.7	14.3	1.5	—262.8—	—	1,087.8	31.0	92.4	4,542	217.6	628.9	749
1983	2,928	4.1	2,932	209.5	69.6	14.2	1.1	—270.0—	—	1,200.2	31.5	90.6	4,820	215.9	618.2	743
1984	2,649	2.7	2,652	208.0	76.0	16.0	1.2	—276.5—	—	1,318.8	34.1	92.2	4,674	229.3	606.2	736
1985	2,855	2.4	2,857	222.9	82.1	20.1	1.0	—293.8—	—	1,491.3	33.3	77.7	5,081	244.4	598.8	716
1986	2,798	2.1	2,800	227.3	88.5	20.4	1.1	—321.5—	—	1,632.8	34.2	82.1	5,209	265.5	600.1	705
1987 ¹	2,717	.9	2,718	227.2	92.6	28.9	1.1	—342.2—	—	1,799.8	35.9	99.0	5,344	270.3	573.9	675
1988 ³	2,757	1.0	2,758					2,815					5,573			
1989 ³	2,680	1.0	2,681					2,890					5,571			

¹ Preliminary. ² Excludes full-skim cheddar and cottage cheese. ³ Estimated. ⁴ Includes cottage, pot, and baker's cheese with a butterfat content of less than 4%. ⁵ Includes cheese with a butterfat content of 4 to 19%. Source: Economic Research Service, U.S.D.A. T.77

Wholesale Price of Cheese, 40-lb Blocks, Wisconsin Assembly Points In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	146.7	147.2	150.8	153.5	154.2	154.8	155.5	157.0	161.5	165.3	164.1	164.1	156.2
1981	164.0	164.0	166.9	167.0	167.8	167.9	167.8	167.8	167.8	168.5	169.2	168.4	167.2
1982	168.4	168.4	168.4	168.4	168.4	168.4	168.4	168.4	168.3	168.6	168.6	168.6	168.4
1983 ¹	139.3	138.4	138.0	137.6	137.4	137.4	137.0	137.1	139.2	140.7	140.7	136.7	138.3
1984	135.8	135.5	135.9	135.9	135.9	136.0	136.7	138.6	144.3	143.8	139.7	137.5	138.0
1985	136.5	134.3	132.1	129.9	128.0	126.8	124.7	124.3	124.3	124.3	123.8	123.9	127.7
1986	123.8	124.5	123.2	125.0	126.0	125.4	126.7	129.5	129.7	130.2	133.4	130.4	127.3
1987	127.8	122.5	122.3	122.4	122.0	122.0	123.2	125.5	126.6	121.9	121.3	120.8	123.2
1988	118.4	116.1	115.6	115.1	115.0	116.2	118.3	127.6	134.6	136.4	136.3	136.0	123.8
1989	129.1	117.6	117.9	120.4	123.9	130.8	140.6	143.3	155.8	160.3	163.6	162.2	138.8

¹ Prices prior to Jan. 1983 are for American Cheese, fresh single daisies at Chicago. Source: Statistical Reporting Service, U.S.D.A. T.79

United States Total Cheese Production¹ In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	312.3	303.1	339.7	336.6	360.5	359.9	332.7	317.6	317.0	332.1	317.2	354.4	3,984
1981	342.8	317.8	374.1	379.5	394.2	390.9	353.0	340.6	334.4	343.4	334.1	372.7	4,278
1982	351.3	331.0	391.7	—	1,203	—	—	1,121	—	—	1,143	—	4,542
1983	384.8	359.3	425.3	413.1	439.4	444.7	402.1	381.3	373.0	391.9	389.3	415.4	4,820
1984	382.1	366.0	412.3	409.9	432.9	415.4	379.9	371.3	357.9	381.2	368.9	396.3	4,674
1985	395.0	361.5	416.0	435.3	461.1	447.2	443.8	427.3	403.6	432.9	415.4	441.8	5,081
1986	433.9	400.0	457.1	459.5	482.5	457.4	436.6	421.7	410.1	410.2	401.0	439.4	5,209
1987 ²	413.6	400.9	457.4	462.1	477.8	465.6	453.8	426.0	430.7	448.6	431.8	469.7	5,344
1988 ²	432.8	428.8	483.9	473.1	490.2	476.7	454.9	442.0	451.9	470.0	458.9	486.5	5,572
1989 ²	556.6	419.5	488.4	472.6	494.9	485.5	464.6	460.4	447.2	453.0	454.2	—	—

¹ Excludes cottage and full skim American. ² Preliminary. Source: Statistical Reporting Service, U.S.D.A. T.78

Cold Storage Holdings of All Varieties of Cheese in the U.S., on First of Month In Millions of Pounds²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	512.1	515.8	508.9	495.1	510.5	544.4	582.7	620.0	613.8	610.6	590.9	565.4
1981	578.8	601.7	596.3	593.6	632.4	649.8	685.7	714.2	719.4	694.3	682.4	677.5
1982	709.6	711.7	696.4	722.4	—	—	803.9	—	—	864.3	—	—
1983	963.5	1,032	1,088	1,118	1,132	1,138	1,162	1,194	1,231	1,248	1,235	1,215
1984	1,205	1,201	1,220	1,217	1,182	1,208	1,193	1,186	1,148	1,115	1,078	1,044
1985	986.2	968.9	944.4	907.7	898.6	911.0	954.2	963.5	962.9	941.0	891.8	877.5
1986	852.9	835.8	813.2	815.7	838.4	873.3	892.8	915.6	916.2	859.0	805.0	757.0
1987	693.6	680.8	652.4	646.5	645.1	666.8	659.0	642.5	606.6	580.8	538.0	495.9
1988 ¹	457.1	453.8	448.3	443.8	451.9	460.1	480.9	496.1	460.8	421.3	400.7	366.7
1989 ¹	388.1	395.3	402.3	394.7	405.1	423.1	429.6	427.0	418.1	367.2	327.2	328.4
1990 ¹	322.3											

¹ Preliminary. ² Quantities are given in "net weight." Source: Crop Reporting Board, U.S.D.A. T.80

Chromite

A space-age mineral with colonial problems, chromite is important in the manufacture of high grade stainless and heat-resistant steel. Because it is unavailable in adequate quantities from reliable suppliers, chromium, along with chromite and ferrochromium, is exempt from U.S. import sanctions under the Comprehensive Anti-Apartheid Act of 1986. South Africa continues to be the major U.S. supplier of ferrochromium and chromite.

While U.S. usage was up across the board in 1989, imports of all grades of ferrochromium in the first eight months of the year were below the corresponding 1988 level. Imports of high-carbon ferrochromium, gross weight, in Jan.-Aug. 1989 totaled 204,570 tonnes, down 19 percent from the similar 1988 period. Apparent drawdowns from stockpiled supplies, as well as increased recovery from scrap stainless steel, explained the decline.

Low-carbon ferrochromium imports in the first eight months of 1989 totaled 28,328 tonnes, gross weight, off from 32,783 in 1988. Medium-carbon ferrochromium imports were 19,297 tonnes, gross weight.

Total U.S. chromium consumption in the first half of 1989 rose by 18 percent to 346,647 tonnes, from 1988's Jan.-Jun. figure. Industry stocks at the end of 1989's first six months totaled 341,986

tonnes, down from year-end 1988's 389,670.

Chromium is used mostly in steel production and also has uses in the refractory and chemical industries. Domestically, there are five principal metallurgical producers of chromium items, four refractory producers, and two chemical industry makers of chromium products. All but two of the eleven major users are located east of the Mississippi River.

World production of crude chromite ore totals over 11 million tonnes annually from twenty nations. South Africa is the major producer, with annual output of 4 million tonnes of chromite ore, followed by the USSR with 3.2 million.

Ferrochromium production is centered in seventeen countries, which together provide 1.98 million tonnes, while another nine nations produce 102,000 tonnes for global output of 2.10 million tonnes. The leading producer is South Africa, with annual output of 630,000 tonnes, followed by the USSR with 223,000.

New ferrochromium plants and plant expansions were being planned in several countries in 1989. Consumption of ferrochromium is closely linked to demand for stainless steel, which was buoyant in the late 1980s.

World Mine Production of Chromite In Thousands of Short Tons (Gross Weight)

Year	Albania	Brazil	Cuba	Finland	Greece	India	Japan	Pakistan	Philippines	Zimbabwe	Turkey	South Africa	Iran	USSR	Madagascar	World Total ¹
1980	840	345	31	399	46	352	15	3	547	610	411	3,763	90	3,200	198	10,915
1981	783	261	23	454	27	369	12	2	484	591	442	3,164	35	3,200	110	10,018
1982	744	304	30	380	32	401	12	4	355	476	499	2,680	45	3,240	49	9,348
1983	755	178	37	271	30	397	9	7	294	463	381	2,718	53	3,240	50	9,050
1984	794	287	41	492	68	466	8	3	288	525	537	3,756	65	3,240	66	10,777
1985	909	209	40	558	65	617	13	6	300	591	649	4,077	62	3,240	140	11,590
1986	940	220	120	787	68	679	12	9	202	588	599	4,307	62	3,470	91	12,227
1987 ²	915	250	135	785	70	575	13	9	190	595	660	4,175	62	3,470	110	12,115
1988 ¹	827	254		772		772			209	661	689	4,630		3,571		12,861
1989 ¹	827	254		772		772			220	661	683	4,960		3,571		13,184

¹ Estimate. ² Preliminary. Source: Bureau of Mines

T.81

U.S. Salient Statistics of Chromite In Thousands of Short Tons

Year	% Net Import Reliance of Apparent Consumption	Net production of Chromium Metals ¹	Imports (For Consumption)	Ex- ports	Re- exports	Consumption by Primary Consumer Groups (Gross Weight)				Consumer Stocks, Dec. 31				% Per Metric Ton	
						Total	Metal- lurgical	Refrac- tory	Chem- ical	Metal- lurgical	Refrac- tory	Chem- ical	Total Stocks	South Africa ²	Turk- ish ⁴
1980	91		6	982	44	977	577	160	240	219	135	322	675	55	110
1981	90		71	898	67	889	503	148	238	230	128	370	728	55	110
1982	85		8	507	57	558	283	80	195	120	113	313	546	52	110
1983	76		11	190	5	320	64	72	184	140	76	239	456	52	110
1984	80		55	305	4	512	226	97	189	24	70	233	327	52	110
1985	75		101	414	4	560	273	65	222	44	49	207	300	42	125
1986	79	65	92	488	1	427	377	50	⁵	275	39	⁵	314	42	125
1987 ¹	76	76	1	540	5	556	505	50	⁵	340	23	⁵	364	46	100
1988 ³	77	76	5	678		552	509	43	⁵	364	66	⁵	430	56	180
1989 ³	79	100	18	580		565	475	90	⁵	372	68	⁵	440	72	200

¹ Preliminary. ² Cr₂O₃, 44% (Transvaal). ³ Estimate. ⁴ 48% Cr₂O₃. ⁵ Included in metallurgical. ⁶ Chromium content. Source: Bureau of Mines

T.82

Coal

U.S. coal production was estimated at a record 973 million short tons for 1989 and was expected to increase to 987 million in 1990, according to the Department of Energy. The increase came despite a strike by the United Mine Workers against the Pittston Coal Company, which began in April 1989 and continued through the remainder of the year. Widespread wildcat strikes in sympathy with the walkout affected Eastern production in June and July.

However, the strike's effects were muted by slow growth in coal consumption. U.S. demand increased by only 0.8 percent in 1989 to 889 million tons, largely because coal use at electric utilities was unchanged at 759 million tons. A mild winter and summer reduced consumer demand for electricity, while hydroelectric generation recovered from the

previous year's drought. U.S. demand for coal was expected to increase only 0.4 percent in 1990 to 893 million tons.

Coal exports were projected to expand by 2.1 percent in 1989 to 97 million tons, because of strong demand for coking coal for steelmaking and supply problems of major exporters, including Australia, Poland and Colombia. Those supply problems were expected to ease in 1990, with U.S. exports reverting to the 95 million tons recorded in 1988.

U.S. coal consumption at coke plants was estimated at 42 million tons, unchanged from 1988. Slowing economic growth and the continuing switch to electric-arc steel furnaces was expected to reduce 1990 demand at coke plants to 41 million tons.

World Production of All Coal³ In Millions of Metric Tons

Year	Australia	East Germany	Canada	Czechoslovakia	Turkey	West Germany	Greece	India	Spain	China	Poland	South Africa	United Kingdom	United States	U.S.S.R.	Yugoslavia
1986	339	311	570	126	46	201	38	174	39	8,940	259	175	108	806	705	69
1987 ²	386	309	612	128	44	191	42	185	35	8,989	265	175	104	831	760	60
1988 ¹	400	310	706	126	42	188	49	197	31	9,465	267	173	104	832	771	59

¹ Estimate. ² Preliminary. ³ Includes anthracite, subanthracite, bituminous, subbituminous, lignite & brown coal. Source: United Nations. T.83

Bituminous Coal Production¹ in the United States In Millions of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1987 ²	74.3	71.3	75.4	70.5	70.3	76.6	69.2	80.1	81.9	85.6	78.9	79.2	915.2
1988 ²	75.3	76.8	83.9	75.3	74.0	76.4	69.2	88.2	83.2	80.8	82.9	80.3	946.3
1989 ²	82.0	75.0	89.0	77.2	82.5	78.5	66.3	90.8	84.6	87.7	85.0	72.6	971.2

¹ Includes small amount of lignite. ² Preliminary. Source: Bureau of Mines

T.88

U.S. Stocks of Bituminous Coal for All Industrial & Retail Dealers, at End of Month In Million Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1987 ¹	162.7	163.3	166.0	169.5	170.8	168.9	156.1	152.3	158.5	167.8	175.6	178.5
1988 ¹	169.5	165.5	166.8	170.6	171.3	166.5	153.4	146.4	147.7	151.9	154.9	151.4
1989 ¹	146.5	141.4	142.6									

¹ Preliminary. Source: Bureau of Mines

T.87

Pennsylvania Anthracite Coal Production¹ In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1987	256	264	305	339	333	359	426	358	359	362	323	303	3,560
1988 ²	215	268	279	265	296	282	246	360	315	384	307	258	3,475
1989 ²	281	282	337	273	280	256	197	311	299	373	339	291	3,519

¹ Represents production in Pennsylvania only. Production outside which is small, is included in Bituminous Production series.

² Preliminary. Source: Bureau of Mines

T.92

Average U.S. Price of Coal In Dollars per Short Ton

Year	Electric Utilities	End-Use Sector Coke Plants	Other Industrial ²	Ex ³ ports	Im ³ ports	Year	Electric Utilities	End-Use Sector Coke Plants	Other Industrial ²	Ex ³ ports	Im ³ ports
1982	34.91	64.97	41.01	56.37	30.40	1986	33.30	50.83	35.84	45.95	36.02
1983	34.99	59.30	39.32	52.16	33.59	1987	31.83	46.55	33.71	42.77	32.04
1984	35.12	56.58	39.29	50.72	35.37	1988	30.67	47.70	33.43	42.23	29.96
1985	34.53	54.30	37.21	48.18	36.04	1989 ⁴				42.53	34.03

¹ Based on the cost including insurance & freight (C.I.F. cost). ² Manufacturing plants only. ³ Based on the free alongside ship (F.A.S.) value. ⁴ Estimate. Source: Energy Information Administration

COAL

Salient Statistics of the Bituminous Coal Industry in the United States

Year	Production			Value		Number of Mines	Thous. of Men Employed	Avg. Tons Per Miner Per Hour			Imports	Exports to:			
	Underground	Surface	Total Production	Total Million \$	Avg. Per Ton \$			Underground	Surface	Total		Grand Total (Thousands of Short Tons)	Canada	Europe	Asia
	Millions Net Tons														
1982	338.6	495.0	833.5	22,621	27.14	5,363	214.4	1.37	3.48	2.14	742	105,244	18,205	51,211	29,957
1983	299.9	478.1	778.0	20,111	25.85	4,265	173.5	1.62	3.87	2.52	1,271	76,870	16,809	32,979	21,895
1984	351.5	540.3	891.8	22,750	25.51	4,902	175.7	1.72	4.10	2.65	1,286	80,793	20,140	32,766	21,306
1985	350.1	528.9	878.9	22,060	25.10	4,547	167.0	1.79	4.32	2.76	1,952	91,361	16,112	44,677	21,803
1986	359.8	526.2	886.0	20,998	23.70	4,203	152.7	2.00	4.69	3.04	2,212	84,017	14,031	42,488	18,765
1987 ¹	372.2	543.0	915.2	21,050	23.00	3,894	141.1	2.21	5.06	3.32	1,747	78,392	15,778	34,124	19,561
1988 ²	381.5	565.2	946.7	20,827	22.00	3,654	133.9	2.38	5.41	3.58	2,134	94,007	18,725	45,091	22,734

¹ Preliminary. ² Estimate. Source: Energy Information Administration

T.84

United States Production of Coal by Principal States In Millions of Short Tons

Year	Anthra- cite Pennsyl- vania	Bituminous													Total Bitu- minous	Total U.S.
		Alabama	Colo- rado	Illinois	Indiana	Ken- tucky	Mon- tana	Ohio	Pennsyl- vania	Vir- ginia	West Vir- ginia	Texas	Wyo- ming			
1982	4.6	26.6	18.3	60.3	31.8	150.2	27.9	36.5	74.8	39.8	128.5	34.8	108.4	833.5	838.1	
1983	4.1	23.8	16.7	56.8	31.8	131.2	28.9	33.8	65.7	35.0	115.0	38.9	112.2	778.0	782.1	
1984	4.2	27.1	18.0	63.8	37.6	159.5	33.0	39.3	73.3	40.4	131.0	41.1	130.9	891.8	895.9	
1985	4.7	27.8	17.2	59.2	33.3	152.3	33.3	35.6	66.7	40.9	127.8	45.5	140.7	878.9	883.6	
1986	4.3	25.8	15.2	61.9	32.9	153.9	34.0	36.4	67.4	41.2	129.9	48.6	136.8	886.0	890.3	
1987	3.6	25.5	14.4	59.2	34.2	165.2	34.4	35.8	66.9	44.5	136.7	50.5	146.9	915.2	918.8	
1988 ²	3.6	26.5	15.9	58.6	31.3	157.9	38.9	34.0	67.1	45.9	145.0	52.3	164.0	946.7	950.3	
1989 ¹	3.5	27.3	16.3	59.3	32.2	163.9	38.5	33.0	68.1	46.2	148.4	53.4	171.1	971.2	973.3	

¹ Estimate. ² Preliminary. Source: Bureau of Mines

T.85

U.S. Consumption & Stocks of Bituminous Coal & Lignite In Millions of Short Tons

Year	Stocks—Dec. 31						Consumption						Total
	Electric Power Utilities	Oven Coke Plants	Steel & Rolling Mills	Other Industrial	Producers & Distrib.	Total	Electric Power Utilities	Coke Plants		Steel & Rolling Mills	Other Industrial	Retail Deliveries ²	
								Beehive	Ovens				
1982	175.1	4.6	—	9.4	36.1	225.2	592.6	—	40.9	—	63.5	6.6	703.6
1983	149.1	4.3	—	8.6	33.4	195.4	624.2	—	37.0	—	65.6	7.1	733.9
1984	173.0	6.2	—	11.2	33.5	223.9	663.3	—	44.0	—	73.2	7.7	788.2
1985	149.2	3.4	—	10.4	32.7	195.7	692.8	—	41.0	—	74.8	6.5	815.1
1986	154.7	3.0	—	13.4	31.6	199.7	684.2	—	36.0	—	111.1	6.4	801.8
1987 ³	163.9	3.9	—	14.6	27.8	206.3	716.9	—	36.9	—	111.7	5.7	834.3
1988 ³	139.6	3.1	—	11.9	—	—	756.5	—	41.9	—	117.7	6.1	880.2

¹ Preliminary. ² To other consumers. (Residential & Commercial) ³ Estimate. Source: Energy Information Administration

T.86

Statistical Trends in the Pennsylvania Anthracite Industry

Year	Production (Millions of Net Tons)			Value of Production Million \$	Avg. Value Per Net Ton	Stocks (Dec. 31)		Exports to:					Apparent Consumption	Avg. No. of Men Working Daily (1,000)	Number of Mines	Avg. Tons Per Miner Per Hr.
	Total	Surface	Underground			Electric Utilities	Prod. & Distrib.	Total	Canada	France	Netherlands	South Korea				
									(1,000 Short Tons)							
1981	5.4	4.8	.6	239.1	44.28	5,537	370	2,249	361	77	22	—	4,084	3.1	232	.92
1982	4.6	4.0	.6	229.3	49.85	6,080	672	980	316	57	—	550	3,349	2.7	220	.59
1983	4.1	3.6	.5	214.4	52.29	6,507	498	776	296	58	30	357	2,823	2.1	224	1.01
1984	4.2	3.6	.6	202.5	48.22	6,710	565	680	301	—	52	292	3,088	2.1	149	1.02
1985	4.7	4.0	.7	215.3	45.80	7,189	416	1,286	277	19	32	535	2,917	2.3	217	1.05
1986	4.3	3.7	.6	189.7	44.12	7,099	512	1,460	437	—	8	868	2,533	2.0	221	1.03
1987 ¹	3.6	2.9	.6	157.1	43.65	6,940	537	1,180	470	—	—	400	2,604	1.6	200	1.13
1988 ²	3.6	2.9	.6	159.0	44.16	—	—	901	—	—	—	—	—	1.5	206	1.21

¹ Preliminary. ² Estimate. Source: Energy Information Administration

T.91

Cobalt

The U.S. is entirely dependent on foreign supplies of cobalt. The last U.S. mine ceased operation in 1971, and domestic refinery operations ceased in 1985. The world's leading producers and the major U.S. suppliers are Zaire, Zambia and Canada. The U.S. maintains an active recycling industry, which recovers secondary cobalt from recycled superalloys, cemented carbide scrap, and spent catalysts.

For the first six months of 1989, total U.S. cobalt consumption was 9.02 million pounds, a 3 percent gain from 8.73 million in first-half 1988. Cobalt metal, which includes cobalt powder, accounted for 4.9 million pounds of total use, or 54 percent. Cobalt scrap usage was 1.8 million pounds, or 20 percent. Chemical compounds usage accounted for 1.7 million pounds, while cobalt oxide use totaled 562,000 pounds.

In January through June of 1989, the U.S. imported an estimated 5.8 million pounds of cobalt, gross weight. The leading source was Canada with a total of 1.51 million pounds, followed by Zambia with 1.43 million and Zaire with 1.02 million pounds. Norway was fast becoming an important supply source, and in the review period provided 611,941 pounds to the U.S.

Because of recent Buy American and Trade Agreement Acts legislation, the two African producers could see declining U.S. market shares in coming years. In 1989, for example, government contracts to upgrade U.S. National Defense Stock-

piles were awarded to a firm that actually made a higher offer. The winner supplied cobalt from Norway, which was a preference country, while cobalt from Zaire and Zambia, which was lower in price, was rejected because the two nations are not preference countries.

Global production of cobalt was estimated at 50.6 million pounds, with nine nations providing the total. Zaire, Zambia, the USSR, and Canada are the four leading producers. U.S. cobalt reserves are large, but reside in subeconomic concentrations in the Northwest.

Identified world cobalt resources are about 12 million tons with the vast majority found in nickel-bearing laterite deposits and the balance in copper sulfide deposits. Interest in exploring the feasibility of exploiting manganese nodules on the sea bed occasionally surfaces, but has not been shown to be commercially feasible.

The price of cobalt increased to just above \$7.75 a pound in 1989 after a stagnant period in March through August 1988, when it remained at just under \$7.00. Cooperative efforts between Zambia and Zaire, which purchased 80 tonnes of cobalt at \$7.40 a pound in the open market in a price stabilization scheme, have kept prices strong during a period of steady, but unspectacular, demand. The two producers' stated price objective is \$8.40 a pound.

World Mine Production of Cobalt In Short Tons of Elemental Cobalt Recovered

Year	Australia ³	Zaire	USSR	France	Canada	Cuba ³	Philippines ³	Finland	Albania ³	Japan	Norway	South Africa	Zambia	New Caledonia ³	World Total
1982	1,631	12,450	2,550	626	1,548	1,653	514	1,141		2,141	1,092		3,584	299	27,081
1983	1,270	5,908	4,850	144	1,459	1,787	182	1,709	500	1,511	969	550	2,653	440	19,935
1984	1,190	10,003	5,200	128	2,340	1,540	71	1,602	650	998	1,313	550	3,827	550	26,045
1985	3,347	11,770	5,300	120	2,230	1,640	1,004	1,573	650	1,407	1,804	550	4,805	745	29,659
1986	2,679	15,984	5,400	110	2,194	1,550	100	1,486	650	1,475	1,742	550	4,788	770	33,811
1987 ²	2,750	13,200	5,400	120	2,425	1,750	—	1,361	650	137	1,764	575	4,630	825	29,696
1988 ¹	1,213	27,998	3,142		3,047	2,205		198	661				7,352	882	48,391
1989 ¹	1,102	23,148	3,142		2,976	2,315		198	661				6,614	882	42,659

¹ Estimate. ² Preliminary. ³ Metal content. Source: Bureau of Mines

T.93

U.S. Salient Statistics of Cobalt In Thousands of Pounds of Contained Cobalt

Year	Net Import Reliance as a % of Apparent Consump- tion	Cobalt Pdt's Produc- tion	Consumer Stocks Dec. 31	Imports for Consump- tion	Consumption By End Uses									Cutting & Wear- Resistant Mater.	Weld- ing & Hard Facing Rods	Total	Price \$ Per Pound ³
					Ground Coat Frit	Stain- less & Heat Resist- ing	Cata- lysts	Super- Alloys	Tool Steel	Mag- netic Alloys	Pig- ments	Drier in Paints, etc. ⁴					
1982	92	2,863	1,327	12,870		51	789	3,319	161	1,544		1,114	638	446	9,468	8.56	
1983	95	3,232	1,441	17,221		54	1,064	4,034	248	1,711		1,503	666	472	11,319	5.76	
1984	95	3,499	1,368	25,310		74	1,296	4,766	353	2,209		1,258	831	399	12,994	10.40	
1985	94	2,876	1,131	17,708		61	1,253	6,380	203	1,455		1,139	1,017	N.A.	13,541	11.43	
1986	85	2,420	1,479	12,288	771	76	1,445	6,446	256	1,791	462	1,593	726	N.A.	14,442	7.49	
1987 ¹	86	3,969	2,056	19,472	794	57	1,096	6,273	383	1,719	570	1,968	1,174		15,099	6.56	
1988 ²	86		1,726		725		1,300	5,800		1,800	585	1,900	1,030		13,821	7.09	
1989 ²	86		1,500		760		1,800	6,250		1,850	575	1,500	900		14,000	7.65	

¹ Preliminary. ² Estimate. ³ Annual spot for cathodes. ⁴ Or related usage. Source: Bureau of Mines

T.94

Cocoa

In 1989, the cocoa market certainly represented a commodity in crisis, as cocoa futures in New York and London fell to sixteen-year lows. With increasing surpluses forecast into the early 1990s, most observers felt that the market had little chance of realizing much upside activity near term. In assessing the overall market tone, most sources made gloomy predictions regarding the supply situation.

Trade forecasts for the 1989/90 seasonal surplus centered on around 230,000 tonnes, compared to a revised trade estimate of 314,000 for 1988/89. The 1989/90 season showed the sixth successive annual surplus and the overage amounted to approximately five months of consumption. The outlook for the medium term was for continued massive cocoa stocks, suggesting a persistent decline in prices.

World cocoa production reached a record 2.294 million tonnes in 1988/89 (Oct.-Sept.), according to industry sources, and was forecast to rise steadily to 2.517 million in 1992/93, assuming no climatic disasters. Production in 1989/90 was expected to be another record, with estimates for the year centering on 2.40 million tonnes. Major producers of cocoa were the Ivory Coast with 730,000 tonnes, Brazil with 345,000, Ghana with 330,000, and Malaysia with 255,000. Nigeria was likely to produce 185,000 tonnes, and Cameroon 110,000.

Because of the surpluses which had built up at source, several African producer nations attempted to arrange block sales of cocoa to Western trade houses. There were two major trade firms that entered into arrangements with the Ivory Coast to accept large quantities of cocoa. Trade analysts indicated that the arrangements were satisfactory for one of the firms, but troublesome for the other.

The reason behind the interest in arranging block sales of cocoa was the failure of the International Cocoa Organization (ICCO), in its September 1989 council meeting, to agree on a suitable mechanism for payment of withholding expenses. The entire proposal failed to obtain the support of either the European Community or the Ivory Coast.

World cocoa grindings in 1989 were estimated at 2.09 million tonnes, a 4.5 percent increase over 1988's total. The industry expected to see that level of growth continue into the 1990s, and grindings were likely to reach 2.2 million tonnes in 1990. Most industry observers considered the ongoing

growth in world cocoa consumption as one of the factors that would eventually lead the market out of its depression. According to a 1989 report from London-based cocoa merchant Gill and Duffus, Ltd., "The impact of very low cocoa prices on manufacturers' raw material costs should help support demand growth over the next two years."

Political events in Eastern Europe and the anticipated opening up of import markets was expected to help keep European cocoa grind figures at high levels. Western European grindings for 1988 totaled 777,000 tonnes, reflecting a 10.4 percent gain over 1987. In 1989, European grindings totaled 841,000 tonnes, up 8.2 percent. In keeping with the trend, the trade estimated 1990 European grindings at 890,000 tonnes. However, it was difficult to predict the full market effect of Eastern Bloc changes in the later part of 1989.

In the first six months of 1989, total U.S. imports in cocoa bean equivalent amounted to 251,531 tonnes, a decline of 4.6 percent from 1988's same period. However, growth of chocolate-based confectionary products continued strong throughout the second quarter. Shipments increased by 3.6 percent in the first six months of the year, which appeared to indicate that consumption of chocolate was still increasing despite the trend toward healthier lifestyles.

In late 1989, cocoa futures fell to \$900/tonne, the lowest level since 1973. After allowing for inflation over the past decade and a half, prices in real terms were some 60 percent lower than in 1975, according to Gill and Duffus. Because of a decline in guarantees for farmers, cocoa pickings could begin to fall over the next few years, as farmers pay more attention to other cash crops and food plantings. Consequently, the trade was slightly optimistic that in time low prices would be the basis for the elimination of surplus stocks, leading to an eventual price recovery.

Futures Markets

Cocoa futures are traded on the Coffee, Sugar, and Cocoa Exchange (CSCE) in New York and on the London Terminal Market. Options are traded on the CSCE and the London Futures and Options Exchange (FOX).

World Cocoa Supply and Demand In Thousands of Metric Tons

Crop Year ¹	Stocks Oct. 1	Net World Crop ²	Total Availability	Seasonal Grindings	Closing Stocks	Stock Change	Crop Year ¹	Stocks Oct. 1	Net World Crop ²	Total Availability	Seasonal Grindings	Closing Stocks	Stock Change
1978-9	388	1,477	1,865	1,457	408	+ 20	1984-5	335	1,926	2,260	1,836	425	+ 90
1979-0	408	1,610	2,018	1,489	529	+ 121	1985-6	424	1,941	2,366	1,864	502	+ 77
1980-1	529	1,643	2,172	1,598	574	+ 45	1986-7	502	1,974	2,476	1,901	575	+ 73
1981-2	574	1,717	2,291	1,592	699	+ 125	1987-8	575	2,177	2,752	1,992	760	+ 185
1982-3	699	1,508	2,207	1,630	577	- 122	1988-9 ³	760	2,375	3,135	2,061	1,074	+ 314
1983-4	577	1,498	2,075	1,740	335	- 242	1989-0 ⁴	1,074	2,386	3,460	2,155	1,305	+ 231

¹ Crop year season is Oct.-Sept. ² The Net World Crop is obtained by adjusting the Gross World Crop for one percent loss in weight. ³ Preliminary. ⁴ Forecast. Source: Gill and Duffus, Ltd.

World Production of Cocoa Beans in Principal Producing Countries In Thousands of Metric Tons

Crop Year (Oct.-Sept.)	Brazil	Camer-oon	Co-lombia	Domin-ican Rep.	Ecu-a-dor	Equator-ial Guinea ¹	Ghana	Indon-esia	Ivory Coast	Mal-aysia	Mex-ico	Papua New Guinea	Nigeria	Sierra Leone	Togo	Vene-zuela	World Total
1980-1	351	120	36	33	85	8	258	13	417	49	30	27	160	10	16	14	1,694
1981-2	315	120	39	43	88	8	225	17	465	61	41	29	183	9	11	15	1,737
1982-3	339	106	40	43	55	9	179	20	360	68	34	29	160	10	10	15	1,545
1983-4	309	109	41	42	55	9	159	23	411	90	35	28	125	9	21	12	1,545
1984-5	415	120	42	39	128	9	175	32	565	100	42	31	170	11	7	11	1,967
1985-6	380	119	46	39	112	9	219	34	555	130	39	33	130	9	13	11	1,946
1986-7	365	123	52	45	77	7	228	39	611	167	38	34	100	8	16	14	1,992
1987-8	400	133	54	50	76	8	187	45	674	227	48	35	145	9	12	13	2,186
1988-89 ³	334	124	56	45	80	8	305	60	800	230	42	35	145	8	10	10	2,363
1989-90 ²	350	120	60	50	78	8	275	75	750	275	43	35	140	9	12	10	2,361

¹ Includes Fernando Po & Rio Muni. ² Forecast. ³ Preliminary. Sources: Foreign Agricultural Service; U.S.D.A.

T.96

World Absorption (Consumption) of Cocoa² In Thousands of Metric Tons

Year	Japan	Aus-tralia	Bel-gium	Brazil	Canada	China	Colom-bia	France	W. Ger-many	Neth-erlands	Spain	Italy	Switz-erland	USSR	United King.	United States	World Total
1980	25	11	23	200	12	15	31	48	158	133	35	34	17	130	65	142	1,512
1981	29	12	29	195	17	15	35	52	167	141	37	35	18	120	85	190	1,600
1982	32	9	29	170	16	15	38	52	175	148	37	39	18	130	88	199	1,607
1983	34	8	33	198	16	10	39	53	180	157	38	36	18	145	77	194	1,656
1984	34	6	36	214	22	12	33	52	194	161	35	40	19	150	90	209	1,753
1985	34	2	36	247	21	7	39	42	207	167	39	47	20	155	91	205	1,857
1986	36	1	35	236	20	27	41	39	201	183	39	40	20	163	87	200	1,879
1987	36	1	32	231	19	14	45	39	209	196	36	44	19	148	95	236	1,905
1988 ¹	40	1	37	220	22	17	47	39	233	216	47	47	21	138	101	244	2,001
1989 ³	42	1	42	182	25	15	47	46	248	234	45	48	23	160	112	249	2,092

¹ Preliminary. ² Figures represent the "absorption," "disappearance" or "grindings" of cocoa beans in each country—in other words, net imports of cocoa beans adjusted for changes in stock. ³ Estimate. Source: Gill & Duffus, Ltd.

T.98

Raw Cocoa Grindings in Selected Countries In Thousands of Metric Tons

Year	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
France					Germany (West)					Holland					
1980	43.1	12.5	10.9	9.1	10.7	151.2	40.2	35.4	32.9	42.6	132.6	35.1	31.4	29.5	36.7
1981	47.0	12.6	12.0	9.6	12.9	159.4	41.7	37.6	35.4	44.7	141.0	36.0	34.3	32.7	38.0
1982	45.5	13.1	12.3	9.7	10.4	167.0	45.1	39.9	35.8	46.3	148.4	38.4	34.9	33.7	41.3
1983	47.6	12.2	12.9	10.9	11.7	179.5	45.7	41.0	43.0	49.8	156.9	40.5	37.9	35.2	43.4
1984	47.2	14.0	12.5	11.1	9.7	193.5	49.9	48.6	42.4	52.6	161.4	44.4	40.0	35.0	42.1
1985	42.5	12.4	10.6	8.3	11.2	206.8	57.0	51.7	44.0	54.0	167.4	44.6	41.7	37.0	44.1
1986	39.4	10.9	10.6	8.2	9.7	201.0	53.6	50.6	42.6	54.2	182.6	46.2	45.1	40.3	51.0
1987	37.8	9.9	9.0	9.2	9.7	208.7	55.2	49.2	46.4	57.8	195.6	49.1	47.3	42.8	56.3
1988 ¹	37.1	10.0	8.6	8.8	9.8	232.8	60.0	54.0	53.0	65.8	216.5	56.1	51.7	50.5	58.2
1989 ¹							62.0	59.2	57.0			61.1	56.4	55.1	
Italy					United Kingdom					United States					
1980	33.8	8.0	8.4	8.1	9.3	65.3	15.5	16.1	15.5	18.2	142.2	33.5	31.5	34.9	42.4
1981	35.1	8.6	8.1	5.8	12.6	85.3	21.7	21.3	19.2	23.1	190.2	48.4	46.0	48.8	47.1
1982	39.2	9.6	10.1	6.0	13.6	88.1	25.3	21.1	19.6	22.1	199.1	47.7	50.6	50.1	50.7
1983	36.4	8.4	7.9	8.1	12.0	76.7	19.8	18.1	17.4	21.3	193.6	45.9	46.7	47.8	53.2
1984	39.8	8.0	5.6	9.8	16.5	89.6	22.3	21.9	21.1	24.2	164.4	42.4	41.6	40.9	39.5
1985	47.4	11.1	10.5	8.8	17.0	91.3	26.5	24.5	20.0	20.3	153.8	39.0	37.5	40.5	36.8
1986	39.8	10.9	9.1	7.8	12.0	87.2	21.1	22.0	20.1	24.0	153.6	33.8	37.0	42.3	40.6
1987	44.2	11.3	9.8	9.9	13.2	95.1	24.5	22.9	22.4	25.3	181.3	39.7	46.5	49.9	45.4
1988 ¹	46.9	11.8	10.1	11.3	13.7	100.9	26.3	25.0	22.4	26.8	187.7	45.0	47.7	49.0	46.0
1989 ¹							28.5	30.1	26.9			42.1	48.5	47.0	

¹ Preliminary. Source: Gill and Duffus, Ltd.

T.97

COCOA

Imports of Cocoa Butter—Selected Countries In Metric Tons

Year	South Africa	Australia	Austria	Belgium	Canada	Finland	France	West Germany	Italy	Japan	Netherlands	Norway	Sweden	Switzerland	UK	USA	USSR
1980	1,007	4,532	2,485	12,388	3,717	2,057	14,285	22,790	1,211	6,264	16,445	1,855	4,155	9,117	29,597	34,658	—
1981	1,444	4,410	3,461	11,960	4,505	2,228	14,170	29,358	1,667	10,352	11,021	1,875	4,234	10,208	19,549	43,196	—
1982	1,464	5,419	3,382	12,281	4,860	2,333	14,008	30,564	1,631	10,615	16,225	2,083	4,451	9,982	25,820	37,325	—
1983	1,270	3,067	3,535	12,128	5,313	2,428	16,690	30,581	2,151	9,947	20,224	1,892	4,704	10,224	31,581	47,981	—
1984	1,699	6,445	3,763	13,451	5,437	2,156	17,325	35,241	2,337	8,436	25,072	2,139	5,103	9,798	30,203	51,711	4,200
1985	1,792	8,538	3,682	15,416	5,535	2,039	19,908	33,378	3,056	8,632	24,595	1,957	4,929	11,175	31,372	70,146	7,150
1986	N.A.	8,204	4,387	13,793	5,377	1,966	19,397	25,513	3,246	8,474	14,925	2,295	4,866	11,369	32,669	70,264	3,450
1987		8,370	3,879	14,312	5,833	1,971	23,704	27,436	3,509	9,330	16,152	2,734	5,272	11,932	29,689	79,773	1,000
1988 ¹		9,405	4,315	12,869	7,371	2,246	24,562	33,590	4,731	12,497	20,431	2,523	5,596	12,821	34,329	78,285	—
1989 ²		9,700	4,400		7,500	2,400	24,000	34,500		13,000	21,000	2,300	5,700	13,700	36,000	77,000	—

¹ Preliminary. ² Estimate. Source: Gill & Duffus Group PLC

T.97a

Imports of Cocoa Liquor and Cocoa Powder (Selected Countries) In Metric Tons

Year	Cocoa Liquor							Cocoa Powder								
	France	West Germany	Nether-lands	Ja-pan	UK	USA	USSR	Belgium	France	West Germany	Italy	Japan	Nether-lands	Sweden	UK	USA
1979	15,872	795	4,136	2,129	4,784	47,828	5,000	3,642	4,368	10,846	5,266	2,215	2,970	2,656	1,747	64,080
1980	15,688	1,922	7,634	2,927	1,928	43,796	5,200	3,335	5,905	10,693	6,142	2,656	3,018	3,457	1,885	65,606
1981	15,457	2,151	9,262	3,499	1,914	33,109	16,000	3,503	7,963	12,935	6,478	2,616	3,255	3,551	2,393	77,879
1982	13,871	2,196	13,519	3,684	2,283	31,419	8,700	3,770	7,609	13,524	6,673	2,832	2,974	3,872	3,284	80,563
1983	15,164	2,288	14,216	4,303	3,829	45,477	15,425	3,895	8,527	13,886	7,964	3,157	3,009	3,806	3,014	78,968
1984	20,268	3,075	13,622	2,928	2,184	45,547	32,000	4,204	9,652	13,554	7,462	3,260	3,574	3,996	3,654	89,978
1985	24,031	3,570	14,822	2,792	3,400	53,042	37,510	4,586	8,269	16,624	8,313	3,841	4,669	3,928	2,591	81,775
1986	28,426	2,006	10,915	3,346	4,091	50,705	30,110	4,844	8,984	15,654	9,059	4,844	4,669	3,980	3,258	89,454
1987	31,171	391	8,805	3,402	1,870	38,105	21,680	5,229	8,967	16,989	9,330	5,517	3,624	3,982	3,897	103,455
1988 ¹	31,157	793	9,014	3,445	3,022	34,454		5,572	9,750	16,453	9,498	6,470	3,432	4,330	3,576	91,357
1989 ²	30,500	1,000	9,800	3,500	2,800	36,000			9,950	17,500		6,800	3,800	4,200	3,300	87,500

¹ Preliminary. ² Estimate. Source: Gill & Duffus Group PLC

T.97b

United States Imports of Cocoa (Includes Shells) In Thousands of Metric Tons²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	11.1	9.2	8.0	19.5	15.4	12.0	16.9	9.6	8.2	9.6	9.4	19.9	148.5
1981	13.5	27.8	19.2	30.4	27.1	24.1	19.3	22.0	20.3	24.1	5.8	11.5	245.0
1982	10.0	29.0	17.6	15.3	16.8	11.9	13.0	20.3	14.3	14.4	14.4	17.4	194.2
1983	46.0	42.7	19.0	36.4	14.4	11.1	9.6	7.2	6.1	5.3	7.7	8.2	213.7
1984	15.5	21.3	28.7	16.9	24.7	15.3	13.3	10.8	10.4	5.0	10.8	18.2	190.9
1985	42.2	43.7	39.1	9.9	30.5	15.6	13.9	12.5	10.9	10.2	12.6	25.0	266.1
1986	29.4	17.1	15.1	9.3	19.0	16.1	21.2	22.5	11.8	7.8	14.9	17.2	201.5
1987 ²	26.1	28.0	22.8	30.5	20.6	10.2	10.6	14.0	5.6	22.1	23.9	43.9	262.6
1988 ¹	27.0	30.0	26.7	18.6	14.9	21.3	14.6	19.8	8.9	8.7	13.7	31.0	236.7
1989 ¹	44.2	24.0	30.4	28.9	24.6	18.4	18.1	23.4					

¹ Preliminary. ² Prior to 1987 data are in thousands of long tons. Source: Department of Commerce

T.102

Bahia (Brazil) Crops In Thousands of Bags of 60 Kilos

Year	Total Crop Brazilian Crop Year	Temporao Brazilian Crop Year	Main Crop (Oct.-Apr.)	Temporao International Crop Year	Total Crop International Crop Year	Year	Total Crop Brazilian Crop Year	Temporao Brazilian Crop Year	Main Crop (Oct.-Apr.)	Temporao International Crop Year	Total Crop International Crop Year
1979-80	5,387	3,129	2,257	2,383	4,640	1985-86	6,027	3,126	2,901	2,774	5,674
1980-81	5,041	2,383	2,658	2,892	5,550	1986-87	6,623	2,774	3,849	1,546	5,395
1981-82	4,609	2,892	1,718	3,170	4,888	1987-88	4,993	1,546	3,448	2,486	5,933
1982-83	5,284	3,170	2,114	3,084	5,198	1988-89 ¹	5,243	2,486	2,758	2,050	
1983-84	5,876	3,084	2,792	1,786	4,578	1989-90 ²		2,050			
1984-85	5,030	1,786	3,244	3,126	6,370	1990-91					

¹ Preliminary. ² Estimate. Source: Gill & Duffus Group PLC

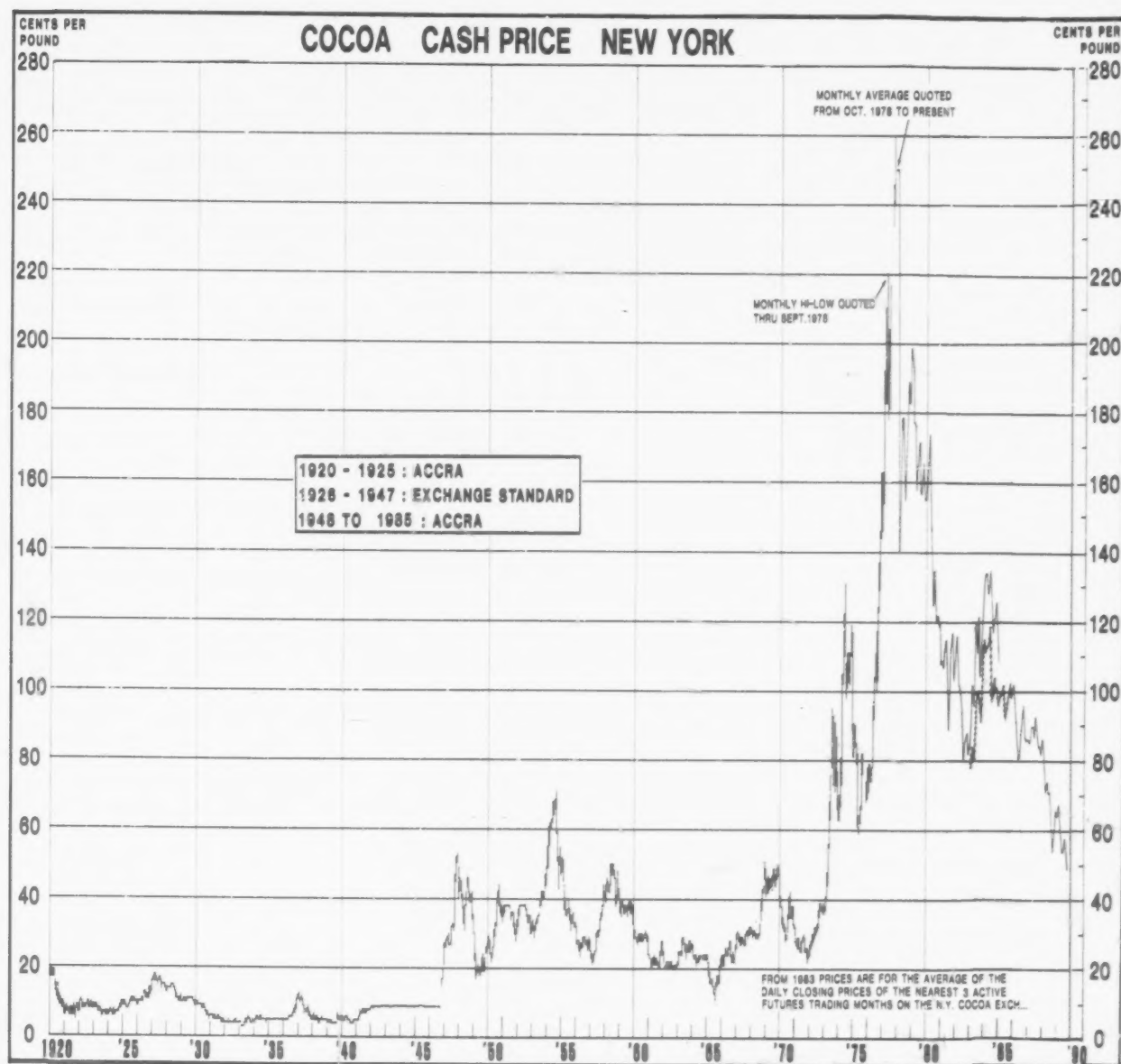
T.102a

New York Cocoa Bean Futures¹ Prices In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	139.1	142.4	136.0	127.9	113.5	108.6	106.2	99.3	103.6	100.9	93.7	91.2	113.5
1981	92.1	88.8	92.5	91.6	82.6	69.6	88.0	96.5	100.6	94.8	88.3	91.7	89.8
1982	95.6	89.6	83.8	75.2	73.3	66.2	66.1	66.0	71.6	70.8	64.8	69.6	74.4
1983	77.6	83.9	80.1	81.4	89.8	99.8	99.6	99.7	93.0	91.3	97.1	112.0	92.1
1984	115.2	110.8	113.0	112.8	118.8	108.2	97.1	98.6	104.3	99.8	100.6	95.5	106.2
1985	98.3	100.0	98.9	101.6	96.1	91.5	95.7	98.2	101.3	102.5	97.9	102.0	98.7
1986	100.6	95.5	91.0	84.9	81.4	81.4	87.6	89.1	95.6	90.6	87.4	85.6	89.2
1987	86.1	84.8	87.2	89.9	89.8	87.0	92.9	88.7	87.1	83.9	84.2	82.1	87.0
1988	86.3	77.9	72.6	71.2	74.3	70.9	71.2	63.1	54.0	57.7	64.4	65.9	69.1
1989	63.7	68.1	64.1	57.6	54.3	54.4	58.0	55.4	48.9				

¹ Avg. of the daily closing price of the nearest 3 active futures trading month converted to ¢ per lb. Source: N.Y. Cocoa Exchange.

T.105



COCOA

Visible Stock of Cocoa in Philadelphia (Delaware River) Warehouses, at End of Month In Ths. of Bags

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	123.6	192.4	281.5	356.5	344.7	338.9	297.7	258.5	204.5	119.8	69.2	43.0
1984	59.5	69.9	105.4	98.8	148.3	168.0	158.3	187.6	165.3	99.7	83.6	217.1
1985	221.3	282.0	333.6	420.9	416.4	389.1	315.9	323.9	320.7	316.3	289.1	280.6
1986	281.3	276.4	258.8	255.8	237.9	201.3	208.7	182.0	209.5	137.1	136.7	188.5
1987	209.8	210.8	228.9	224.1	243.6	276.2	291.4	259.7	236.6	177.9	189.6	206.3
1988	164.6	149.2	154.9	211.1	227.3	232.0	238.1	193.3	185.5	157.6	123.4	112.0
1989	86.0	67.5	88.7	96.2	114.0	112.5	100.3	100.0	54.6	46.1	51.9	53.5

Source: Coffee, Sugar & Cocoa Exchange, Inc.

T 107

Visible Stock of Cocoa in New York Warehouses¹, at End of Month In Thousands of Bags

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	64.7	80.1	80.0	88.9	136.4	184.8	178.7	173.5	138.6	109.5	103.0	93.9
1984	59.3	53.2	52.3	52.5	70.7	57.2	93.8	99.9	109.2	62.8	36.3	32.4
1985	34.7	22.0	13.2	36.4	167.8	170.9	161.3	155.7	164.6	150.6	131.8	107.1
1986	99.2	96.9	95.6	89.7	87.4	90.3	88.9	103.6	102.1	87.5	70.6	59.9
1987	51.9	43.5	40.0	39.4	55.2	46.1	58.7	43.5	49.4	44.8	107.7	149.1
1988	138.7	115.4	100.1	96.8	102.8	135.4	140.8	146.8	114.3	105.8	73.7	59.8
1989	65.0	81.9	47.3	82.2	214.8	245.3	274.2	215.6	181.3	247.7	313.6	293.5

¹In licensed & unlicensed warehouses of storage companies licensed by the Coffee, Sugar & Cocoa Exch. Inc. Source: Coffee, Sugar & Cocoa Exch., Inc.

T 106

U.S. Spot Cocoa Prices for Selected Origins of Cocoa Beans and Products (Dollars per metric ton)

Crop Year (Oct.-Sep.)	Cocoa Beans					Chocolate Liquor		Cocoa Butter		Cocoa Cake 10-12% Fat
	Ivory Coast	Mal- aysia	Brazil	Dominican Republic	Ecuador	Ecuador	Brazil	African	Other	
1983/84	2,569		2,611	2,361	2,477	3,025	3,119	5,281	5,178	1,610
1984/85	2,433		2,407	2,197	2,239	2,784	2,919	5,331	5,276	951
1985/86	2,281		2,207	2,020	2,048	2,552	2,720	4,940	4,897	825
1986/87	2,155		2,087	1,942	1,975	2,554	2,634	4,643	4,608	965
1987/88	1,952		1,807	1,664	1,700	2,216	2,280	4,001	3,919	916
1988/89	1,773	1,364	1,669	1,442	1,466	1,912	2,136	3,543	3,515	945
July '89	1,512	1,308	1,478	1,348	1,359	1,836	1,998	3,397	3,385	877
Aug. '89	1,466	1,246	1,416	1,289	1,308	1,757	1,874	3,272	3,249	842
Sept. '89	1,309	1,110	1,270	1,142	1,173	1,557	1,663	2,905	2,899	760

Source: The Cocoa Merchants Association. All prices are nominal net ex-dock or ex-warehouse, U.S. Eastern seaboard North of Hatteras, for merchandise physically available in interstate commerce, in truckload quantities, regular commercial quality. Foreign Agricultural Service, U.S.D.A.

T 99a

Month-End Open Interest of Cocoa Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	25,989	22,401	22,155	24,796	29,457	29,403	28,447	29,275	28,282	27,890	29,266	29,153
1984	29,712	26,116	26,511	22,277	26,795	23,817	23,691	23,397	22,106	22,505	21,253	20,936
1985	25,616	23,817	27,701	23,588	21,103	21,515	20,487	19,106	20,720	20,224	17,981	16,044
1986	19,259	19,521	21,341	19,654	24,246	23,100	26,017	25,781	25,636	25,189	22,577	26,109
1987	24,868	23,444	23,199	23,313	25,155	25,156	33,285	30,588	32,109	32,042	27,643	26,978
1988	28,603	29,088	33,806	33,799	35,027	38,464	38,593	38,283	38,057	38,336	37,039	36,762
1989	35,903	35,238	33,888	39,450	42,603	45,975	50,008	40,726	43,132	48,808	48,793	49,394

Source: Coffee, Sugar & Cocoa Exchange, Inc.

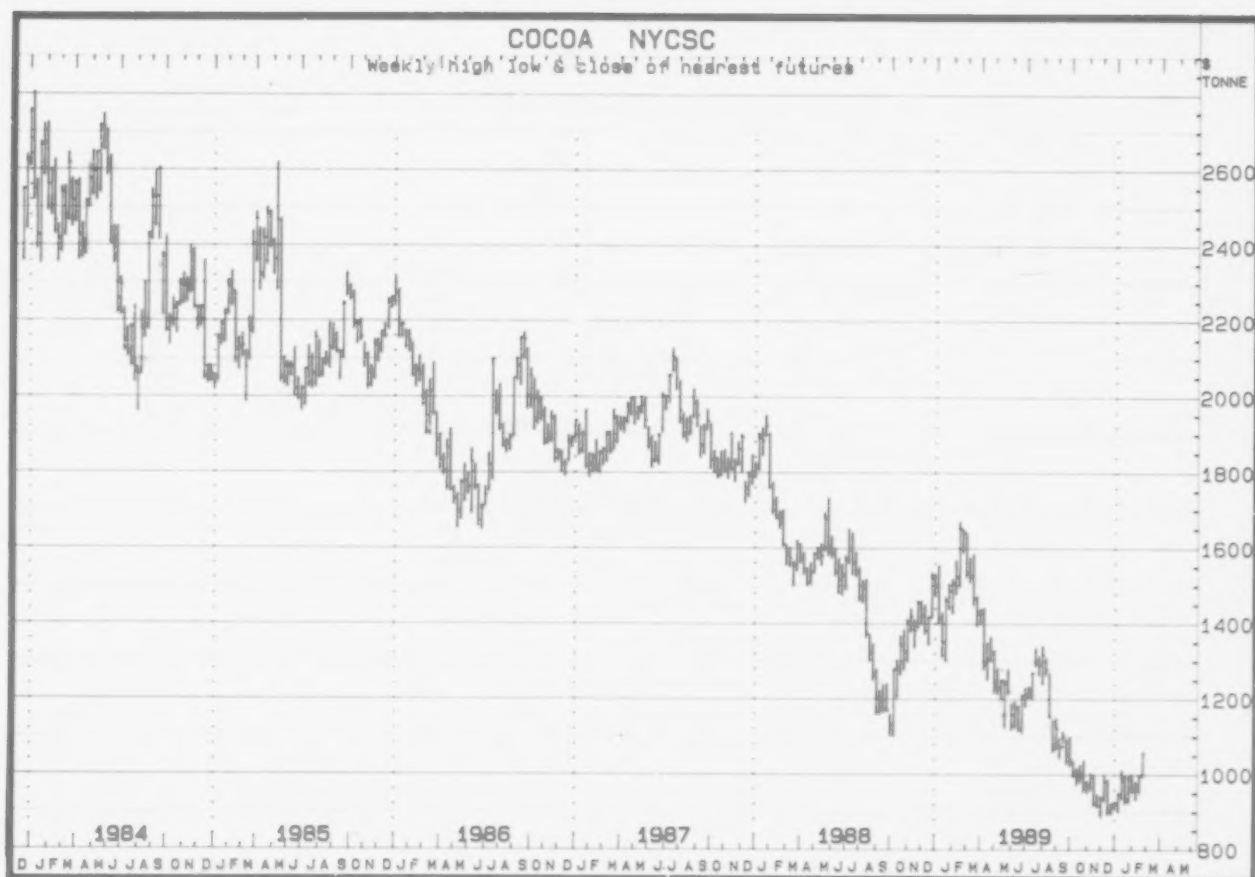
T 103

Volume of Trading of Cocoa Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	88,429	96,636	82,115	91,851	83,275	135,536	102,212	112,031	103,023	70,032	97,781	98,619	1,162,540
1984	151,282	113,788	102,622	103,415	113,757	107,219	75,180	101,732	75,294	69,322	74,357	33,927	1,127,752
1985	86,748	83,988	94,863	72,564	64,716	62,989	74,583	57,842	52,912	58,358	53,056	37,954	800,573
1986	52,774	61,836	70,859	74,249	57,525	77,335	79,029	65,963	75,673	64,729	54,090	43,703	777,765
1987	67,268	61,641	73,341	67,954	68,521	93,849	111,728	66,990	71,591	70,164	81,605	60,813	895,465
1988	84,590	83,826	92,644	85,144	111,277	121,184	128,859	106,031	87,684	137,635	142,016	87,160	1,268,050
1989	138,883	122,374	116,082	132,208	135,783	129,943	98,922	137,879	73,741	95,531	101,152	59,352	1,341,850

Source: Coffee, Sugar & Cocoa Exchange, Inc.

T 104



High, Low & Closing Prices of March Cocoa Futures at New York In Dollars per Tonne

Year of Delivery	Year Prior to Delivery												Delivery Year			Life of Delivery Range
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.		
1984 High	2015	1958	1990	2325	2390	2460	2440	2195	2124	2272	2759	2805	2626	2645	2805	
	Low	1785	1790	1780	1895	2070	2055	2080	1907	1953	1967	2175	2353	2355	2425	1653
	Close	1838	1835	1990	2168	2224	2369	2113	2089	1989	2224	2755	2521	2462	2617	—
1985 High	2455	2510	2500	2560	2430	2234	2305	2350	2248	2291	2133	2309	2332	2210	2602	
	Low	2240	2350	2343	2401	2230	1998	1990	2150	2118	2056	2034	2018	2071	1985	1985
	Close	2363	2489	2435	2401	2280	2000	2275	2199	2224	2117	2052	2271	2140	2139	—
1986 High	2135	2190	2170	2105	2048	2207	2295	2392	2365	2239	2305	2315	2140	2059	2390	
	Low	2000	1955	2025	1980	1967	1991	2125	2170	2173	2117	2180	2118	1975	1899	1899
	Close	2028	2150	2027	2041	2013	2153	2262	2336	2191	2214	2298	2146	2000	2011	—
1987 High	2283	2200	2106	1960	2007	2098	2176	2248	2076	2003	1937	1965	1884	1915	2412	
	Low	2148	2015	1931	1884	1825	1895	1970	2011	1920	1876	1837	1787	1797	1827	1787
	Close	2165	2039	1952	1906	1904	2034	2176	2034	1927	1886	1935	1820	1857	1906	—
1988 High	2030	2043	2115	2118	2055	2180	2031	1994	1895	1930	1908	1950	1773	1600	2180	
	Low	1957	1980	2025	1971	1913	1986	1922	1825	1816	1794	1727	1758	1580	1500	1500
	Close	2000	2033	2066	1985	2034	2021	2005	1844	1850	1866	1814	1760	1584	1502	—
1989 High	1902	1774	1712	1799	1699	1638	1520	1268	1340	1517	1536	1555	1670	1591	2088	
	Low	1750	1670	1625	1653	1540	1495	1251	1125	1125	1307	1371	1301	1433	1510	1125
	Close	1750	1682	1705	1695	1601	1495	1254	1146	1297	1476	1500	1446	1604	1558	—
1990 High	1465	1400	1323	1280	1300	1355	1373	1164	1042	1014	972					
	Low	1340	1308	1208	1133	1202	1250	1090	1031	970	906	896				
	Close	1393	1322	1221	1205	1272	1302	1154	1053	995	939	925				

Source: N.Y. Coffee, Sugar & Cocoa Exchange, Inc.

T 108

Coconut Oil and Copra

Copra, dried coconut meat, is processed or crushed into coconut oil and copra meal. The USDA projected world 1989/90 copra output at 4.7 million tonnes, 4 percent more than in 1988/89. The Philippines is the largest producer of copra, though its output varies due to weather conditions. The country accounts for about half of world production. Droughts and typhoons in recent seasons have taken a toll on the Philippine crop.

Indonesia is the second major producer and accounts for about a quarter of world output. Other producers are India and Sri Lanka.

World 1989/90 copra exports were projected at 300,000 tonnes, 7 percent more than the previous season. Copra accounts for only 1 percent of world trade in oilseeds. The Philippines is a major copra exporter, followed by Papua New Guinea, the New Hebrides, and the Solomon Islands.

The world copra crush in 1989/90 was projected to be 4.58 million tonnes, about 3 percent more than the previous season. The Philippines and Indonesia are important processors. New Guinea and the New Hebrides sell their crops to processors in the European Community, Japan, and South Korea. Global ending stocks of copra were projected to increase to 170,000 tonnes from 160,000 in 1988/89.

World 1989/90 coconut oil production was forecast at 2.84 million tonnes, 4 percent more than the season before. The Philippines produces close to half of the world supply, and Indonesia is a major producer. World coconut oil exports were forecast

at 1.41 million tonnes, up 17 percent from the previous season. Though exports by the Philippines slowed in late 1989, a cyclical recovery was expected.

World 1989/90 coconut oil consumption was estimated at 2.86 million tonnes, or 3 percent more than the previous season. The major consumers of coconut oil were Indonesia, the European Community, and the U.S. Coconut oil accounts for about 5 percent of world consumption of vegetable and marine oils.

In the U.S., most coconut oil is used in inedible products, such as soap. U.S. oil stocks had been low, so some build-up was in order. U.S. coconut oil imports in 1989/90 were likely to reach 475,000 tonnes.

World ending stocks of coconut oil were estimated at 320,000 tonnes, compared to 340,000 in 1988/89.

World copra meal production in 1989/90 was projected to be 1.64 million tonnes, 4 percent more than the previous season. World exports of copra meal were estimated at 1.09 million tonnes, up from 980,000 tonnes the season before. The Philippines and Indonesia were major exporters. World consumption of copra meal was estimated at 1.59 million tonnes, 3 percent above the previous season.

Ending stocks of meal were forecast to be 90,000 tonnes, the same as a year earlier.

World Copra Production by Principal Countries In Thousands of Metric Tons

Crop Year	Naupu	Fiji	India	Indonesia	Jamaica	Malaysia	Mexico	Mozambique	Papua New Guinea	Philippines	Solomon Isl.	Sri Lanka	Tanzania	Thailand	Ivory Coast	Van./New Heb.	Vietnam	World Total
1979-80	46	25	329	1,158	29	210	120	68	145	1,960	32	93	29	50	21	34	39	4,553
1980-1	42	25	329	1,284	25	208	130	55	158	2,256	32	128	29	30	24	47	39	4,986
1981-2	42	25	335	1,205	28	206	100	50	132	2,077	33	174	29	35	26	44	40	4,790
1982-3	42	25	268	1,091	29	208	110	50	120	2,015	31	131	29	30	27	45	40	4,600
1983-4	42	25	300	1,225	30	214	100	55	158	1,237	43	62	29	35	36	47	60	3,781
1984-5	42		360	1,260		166	100	55	176	1,813	45	240		93	60	39	65	4,681
1985-6			380	1,250		162	100	55	160	2,500	31	242		65	53	41	70	5,306
1986-7			320	1,270		97	115	65	149	2,100	28	125		74	48	36	70	4,709
1987-8 ¹			300	1,250		97	140	65	136	1,800	35	62		74	48	30	70	4,323
1988-9 ²			330	1,270		94	140	65	150	1,850	35	130		74	49	35	80	4,518
1989-90 ²			330	1,340		93	135	65	150	2,000	35	100		74	50	35	80	4,704

¹ Preliminary. ² Forecast. Source: Foreign Agricultural Service, U.S.D.A.

T.109

World Coconut Oil Supply and Distribution In Thousands of Metric Tons

Crop Year	Malaysia	India	Production Indonesia	Philippines	Total	Exports	Imports	EC-12	India	Consumption Indonesia	Philippines	United States	Total	Ending Stocks Philippines	United States	Total
1983/4	125	189	672	786	2,273	1,053	908	374	199	577	223	415	2,424	104	50	253
1984/5	104	226	708	919	2,607	1,186	1,102	410	226	574	253	386	2,553	115	59	223
1985/6	86	236	720	1,587	3,296	1,613	1,523	575	236	710	286	461	3,040	178	140	389
1986/7	56	198	731	1,320	2,934	1,487	1,364	553	198	610	257	488	2,825	187	123	375
1987/8	50	186	720	1,115	2,651	1,388	1,378	510	187	500	296	424	2,654	142	151	362
1988/9 ¹	54	205	738	1,110	2,740	1,205	1,272	500	210	580	322	407	2,805	217	94	364
1989/90 ²	54	205	765	1,197	2,840	1,411	1,426	529	210	585	340	425	2,881	169	114	338

¹ Preliminary. ² Forecast. Source: Foreign Agricultural Service, U.S.D.A.

T.110

COCONUT OIL AND COPRA

Supply & Distribution of Coconut Oil in the United States In Millions of Pounds

Year Begin. Oct. 1	Coconut		Imports ²	Stocks Oct. 1 ³	Total Supply	Exports & Shipments	Disappearance			Production of Coconut Oil (Refined)				
	Copra Tonne	Oil CIF					Total Domestic	Edible Pdt's.	Inedible Pdt's.	Total	Jan- March	April- June	July- Sept.	Oct.- Dec.
	Rotterdam U.S. \$													
1981-2	333	500	960	204	1,164	29	976	337.9	411.5	700.3	193.3	175.3	171.9	159.8
1982-3	414	608	882	160	1,042	21	876	340.0	493.9	665.7	162.1	162.4	168.7	172.5
1983-4	707	1,123	916	145	1,061	50	901	299.0	602.0	692.6	163.1	186.0	167.1	176.4
1984-5	476	746	891	110	1,001	20	904	275.0	376.0	616.2	161.3	175.7	145.1	134.1
1985-6	200	304	1,217	130	1,347	22	1,016	332.8	683.0	564.0	130.7	133.9	147.6	151.8
1986-7 ²	285	413	1,087	309	1,396	49	1,039	319.4	720.4	715.4	197.9	180.4	155.4	181.7
1987-8 ¹	385	547	1,071	271	1,342	77	933	233.3	699.7	803.7	194.2	214.9	195.3	199.3
1988-9 ¹	371	545	825	332	1,157	55	928	215	713	708.8	165.1	182.0	166.3	195.4
1989-90 ¹	306	454	1,045	174	1,059	66	935				163.8	187.3	156.7	

¹ Preliminary. ² Imports for consumption. ³ Includes G.S.A. stockpile & in U.S. bond. Source: Bureau of the Census; Agricultural Marketing Service T.112

U.S. Consumption of Coconut Oil in End Products (Edible & Inedible Pdt's.) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	55.9	49.9	59.5	55.8	58.1	56.3	56.2	51.0	62.5	66.9	63.1	58.3	693.5
1981	67.6	65.0	71.1	68.2	64.0	70.4	58.0	70.4	66.7	73.2	59.8	52.2	786.6
1982	63.3	59.6	61.7	58.5	64.7	64.2	62.2	63.9	66.1	60.2	70.5	60.6	755.5
1983	62.0	64.8	61.1	64.8	80.2	74.9	70.5	61.2	64.3	68.4	66.2	61.0	799.4
1984	71.5	68.5	66.0	67.0	72.6	70.9	61.8	70.7	48.1	63.4	56.6	45.3	762.4
1985	53.4	57.1	46.1	52.5	51.7	52.8	53.2	57.2	61.2	53.0	57.7	50.0	645.9
1986	67.7	43.8	44.7	52.5	45.7	50.0	49.5	67.2	52.8	78.7	65.9	52.2	670.7
1987	63.7	58.0	76.2	74.1	72.8	81.4	73.8	79.1	82.5	89.6	70.0	72.8	894.0
1988	76.1	71.2	59.1	59.6	66.8	65.8	55.1	53.8	48.7	65.2	57.9	57.9	737.2
1989 ¹	52.6	51.6	64.2	55.0	65.9	58.0	60.6	51.2	51.2	50.1			

¹ Preliminary. Source: Bureau of the Census

T.114

Stocks of Coconut Oil (Crude & Refined) in the United States² In Millions of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1980	309.7	357.7	248.4	246.5	211.2	211.9	220.6	191.6	210.1	182.6	225.6	264.6
1981	300.1	309.2	359.6	322.5	309.5	289.5	285.1	265.8	260.3	227.7	170.0	168.7
1982	173.1	153.6	186.0	160.7	153.0	170.8	194.8	184.3	166.9	159.7	144.5	144.5
1983	127.2	143.8	144.7	144.0	162.9	168.9	123.6	127.7	131.8	145.3	162.5	175.6
1984	175.2	215.5	193.8	165.0	150.2	121.8	78.7	90.9	100.2	111.0	119.8	107.3
1985	121.4	128.0	91.9	81.3	75.9	86.0	116.0	121.7	140.5	130.0	177.4	162.8
1986	206.5	259.0	262.1	285.1	247.4	289.3	275.0	273.4	273.8	308.0	295.5	320.5
1987	323.3	323.6	355.7	318.1	336.9	271.2	203.6	243.9	240.8	270.2	288.5	370.9
1988	367.7	358.8	370.7	371.1	356.0	353.6	336.6	290.2	287.5	335.0	339.1	307.0
1989 ¹	275.7	279.0	247.4	205.3	167.7	134.7	189.9	177.5	149.8	150.8	219.2	

¹ Preliminary. ² Includes coconut oil held in U.S. customs bond. Source: Bureau of Census

T.115

Average Price of Coconut Oil (Crude) Tank Cars at New York¹ In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	40.8	40.6	37.5	34.1	29.3	29.5	30.4	29.9	29.1	27.9	29.4	27.8	32.1
1981	26.3	25.0	23.9	24.3	26.0	27.4	28.1	26.4	24.3	26.6	26.6	25.4	25.9
1982	24.8	24.8	22.9	23.0	23.3	23.1	21.1	19.3	19.8	20.0	N.A.	N.A.	22.2
1983	N.A.	20.3	21.0	25.6	28.4	35.8	33.7	N.A.	N.A.	N.A.	N.A.	44.9	27.5
1984 ¹	49.2	54.3	53.0	50.8	63.0	69.9	73.3	70.0	64.6	65.6	56.2	52.6	60.2
1985	42.2	40.2	41.0	41.0	N.A.	N.A.	31.7	27.5	25.0	24.0	22.8	17.4	31.3
1986	20.6	18.0	15.6	15.5	13.8	13.9	13.8	13.0	13.3	16.8	19.8	20.7	16.2
1987	21.40	20.88	19.30	20.38	21.44	24.25	25.75	25.13	24.40	24.69	24.50	27.15	23.27
1988	28.81	26.06	25.45	25.25	26.50	30.45	31.88	28.30	27.38	27.44	28.06	27.81	27.80
1989	26.75	27.63	27.90	28.94	29.90	29.56	28.94	27.75	28.63				

¹ Prior to 1984, prices are at the U.S. Pacific Coast. Source: Bureau of Labor Statistics

T.116

Coffee

The coffee market underwent a radical change in 1989, as the International Coffee Agreement (ICA) was placed on hold, and coffee reverted back to a free trading, unencumbered market for the first time since 1962. On July 3, 1989, at a special meeting held in London, the International Coffee Organization (ICO) rejected by consensus two proposals to extend the ICA with export quotas. The council decided to extend the agreement for two years from October 1, 1989, but without any economic clauses, other than continuing to prepare ICO coffee indicator prices.

When export quotas were suspended on July 3, the futures market fell precipitously, losing more than 40 percent of its value within a few months. Several producer nations suffered a severe economic shock, notably Colombia, which was one of the more active proponents of a renewed ICA. Colombian government officials, engaged in an active campaign to eradicate drug gangsters terrorizing the nation, were highly vocal in condemning the pact's failure.

During the year, Colombian officials tried to link drugs and coffee, suggesting that lower coffee prices would push growers into the arms of the drug lords. President Bush attempted to support the position for a renewed ICO, in contrast to the more laissez-faire attitude of the U.S. trade delegation to the ICO talks in London. However, future success in reviving the ICO actually rested more with Brazil, than the U.S. or Colombia.

During the negotiations for a new ICA, Brazil refused to cede a single bag of quota to the demands of the Other Milds producers, who wanted more quota based on a decade-long surge in their exports. Brazil claimed historical prerogatives, since it is the leading coffee producer and has always held the largest portion of the global export quota.

This intransigence caused the talks to break down and may have given Brazil what it wanted, an economic club with which to bludgeon the other producers when the ICO next meets to talk about restoration of quotas. Brazil is the coffee producer best able to withstand a period of low prices. Whereas many producers count coffee as their

major, or second largest, foreign exchange earner, Brazil is more diversified, and coffee accounts for about 5 percent of its total earnings. Coffee provides more than 90 percent of the export earnings of countries like Uganda and Honduras.

The World Bank (IBRD) indicated that if there were no new ICA with quotas, world coffee prices would remain at levels 20-30 percent below those with quotas for a short period. However, the Bank predicted that within an eight-year period, high-cost producers would be forced out, and the market would stabilize at more profitable levels.

World coffee production in 1989/90 was forecast at 94 million bags, a gain of about 2 percent from the previous season. Exportable production, which is total harvested production minus domestic consumption in producing countries, was estimated at 69.6 million bags.

Brazil was expected to harvest about 26 million bags in 1989/90 and around 30 million in 1990/91. The 1989/90 crop in Colombia, the second largest producer, was expected to be about 13 million bags.

Import demand for coffee, measured in terms of disappearance (net imports less changes in stock levels) in ICO member importing countries, was estimated at about 60 million bags in calendar 1988, which was about the same as in 1987, but a gain of about 3 million-4 million bags over the annual average in 1983-1986. Imports by ICO members account for the bulk of world coffee trade.

According to the ICO's 1989 U.S. Winter Coffee Drinking Study, 52.2 percent of the population drank an average of 3.34 cups of coffee a day, which was up from 1988's 50 percent. This increase was seen as a possible reversal in the trend towards lower consumption.

Futures Markets

Washed Arabica futures are traded on the Coffee, Sugar, and Cocoa Exchange (CSCE) in New York. Robusta coffee futures are traded in London and Paris. Options are traded on the CSCE and the London Futures and Options Exchange (FOX).

World Coffee Supply and Distribution In Thousands of 60 Kilo Bags

Country by Time Period	Beginning Stocks	Production	Imports	Total Supply Distribution	Domestic Use	Exports				Ending Stocks
						Beans	RSTD/GRND	Soluble	Total	
1979/80	25,053	81,789	690	107,532	19,973	59,244	217	2,573	62,034	25,525
1980/81	25,525	86,261	653	112,439	20,595	56,835	166	2,821	59,822	32,022
1981/82	32,022	98,189	769	130,980	21,232	60,584	223	4,059	64,866	44,882
1982/83	44,597	82,170	773	127,540	20,806	62,539	202	2,490	65,231	41,503
1983/84	41,412	88,603	606	130,621	21,089	65,036	349	2,772	68,157	41,375
1984/85	41,375	90,266	456	132,097	23,015	68,348	308	3,344	72,000	37,082
1985/86	37,082	95,232	387	132,701	21,349	66,709	248	2,611	69,568	41,784
1986-87	41,784	79,337	265	121,386	22,219	67,602	299	2,399	66,300	32,867
1987-88 ¹	32,867	103,527	346	136,740	23,756	64,114	295	2,822	67,231	45,753
1988-89 ²	45,753	93,160	315	139,228	24,799	64,815	430	2,860	68,105	46,324
1989-90 ²	47,133	93,802	293	141,228	24,384				77,708	39,136

Note: Total may not add because of rounding. ¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.117a

World Green Coffee (Total) Production In Thousands of 60 Kilo Bags (132.276 Lbs. Per Bag)

Crop Year	Papua-N. Guinea	Brazil	Camer-oon	Colom-bia	Costa Rica	Ethi-opia	Guate-mala	India	Indon-esia	Ivory Coast	Mexico	Salva-dor	Uganda	Zaire (Congo, K)	World Total
1980-1	870	21,500	1,959	13,500	2,140	3,264	2,702	1,977	5,365	6,090	3,862	2,940	2,133	1,526	86,344
1981-2	910	33,000	1,850	14,342	1,782	3,212	2,653	2,540	5,785	4,160	3,900	2,886	2,885	1,425	98,189
1982-3	640	17,750	1,830	13,300	2,300	3,670	2,530	2,170	4,750	4,510	4,530	3,100	3,000	1,354	82,778
1983-4	925	30,000	1,000	13,000	2,070	3,300	2,340	1,667	5,515	1,420	4,530	2,400	2,700	1,350	88,595
1984-5	775	27,000	2,316	11,000	2,516	2,587	2,703	3,250	5,600	4,609	4,250	2,680	2,800	1,540	90,266
1985-6	860	33,000	2,067	12,000	1,514	2,833	2,650	2,033	5,800	4,420	4,826	2,300	2,700	1,610	95,630
1986-7	756	13,900	2,191	11,000	2,566	2,700	2,843	3,350	5,900	4,405	5,297	2,275	2,700	1,875	79,280
1987-8	1,100	38,000	1,251	13,000	2,375	3,100	3,020	2,050	5,965	3,103	4,717	2,538	2,600	2,000	102,842
1988-9 ¹	1,188	25,000	2,253	10,700	2,758	2,900	2,913	3,590	6,400	3,620	5,200	1,492	3,000	1,650	91,613
1989-90 ²	1,050	26,000	1,415	13,000	2,450	3,000	3,000	2,250	6,400	4,000	5,000	2,375	3,200	1,700	93,800
1990-91															

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.117

World Green Coffee (Exportable)³ Production In Thousands of 60 Kilo Bags

Crop ² Year	Papua-N. Guinea	Brazil	Camer-oon	Colom-bia	Costa Rica	Ethi-opia	Guate-mala	Indon-esia	Ivory Coast	Kenya	Mexico	Salva-dor	Uganda	Zaire (Congo, K)	World Total
1980-1	837	13,500	1,926	11,675	1,932	1,664	2,381	4,137	6,026	1,648	2,362	2,740	2,090	1,346	66,064
1981-2	901	24,500	1,815	12,492	1,539	1,596	2,328	4,630	4,095	1,434	2,450	2,686	2,840	1,240	77,311
1982-3	631	9,750	1,785	11,445	2,077	2,108	2,195	3,636	4,445	1,501	2,830	2,900	2,954	1,159	62,366
1983-4	923	21,500	945	11,140	1,837	1,728	2,000	4,375	1,395	1,938	3,030	2,200	2,653	1,150	67,676
1984-5	762	16,500	2,261	9,135	2,281	1,087	2,373	4,590	4,582	1,488	2,635	2,480	2,752	1,340	67,449
1985-6	842	24,000	1,987	10,130	1,276	1,293	2,350	4,800	4,391	1,951	3,326	2,120	2,650	1,410	74,764
1986-7	738	4,900	2,058	9,000	2,324	1,034	2,543	4,950	4,375	1,732	3,797	2,095	2,649	1,670	57,569
1987-8	1,087	28,000	1,206	10,980	2,135	1,723	2,720	4,915	3,071	2,037	3,137	2,369	2,547	1,791	80,141
1988-9 ¹	1,173	15,500	2,218	8,891	2,513	1,150	2,608	5,300	3,588	1,645	3,400	1,332	2,946	1,430	68,904
1989-90 ⁴	1,034	15,800	1,385	10,930	2,188	1,200	2,690	5,250	3,967	1,640	3,100	2,206	3,145	1,475	69,645
1990-91															

¹ Preliminary. ² Coffee marketing year begins in July in some countries & in others about Oct. ³ Exportable production represents total harvested production minus estimated domestic consumption. ⁴ Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.118

Coffee United States Trade—Quantity and Value

		Imports				Exports				Reexports			
		Green	Roast-ed ¹	Sol-uble ¹	Total	Green	Roast-ed ¹	Sol-uble ¹	Total	Green	Roast-ed ¹	Sol-uble ¹	Total
1983	Ths.Bags	16,449	197	1,019	17,665	14	147	199	360	599	30	22	651
	Mil. \$	2,592	32	141	2,765	3	44	51	98	104	10	3	117
1984	Ths.Bags	17,734	284	1,075	19,093	29	141	188	358	888	7	5	900
	Mil. \$	3,061	50	153	3,264	5	44	46	95	163	2	1	167
1985	Ths.Bags	18,698	258	994	19,950	22	167	140	328	695	7	12	714
	Mil. \$	3,128	49	139	3,315	4	52	35	90	122	2	3	127
1986	Ths.Bags	19,843	274	933	21,050	45	169	122	336	1,085	17	5	1,107
	Mil. \$	4,359	65	183	4,607	11	50	33	94	255	5	1	261
1987	Ths.Bags	19,906	288	925	21,119	57	138	180	375				834
	Mil. \$	2,706	47	145	2,898	10	39	40	89				
1988	Ths.Bags	15,348											1,001
	Mil. \$												

¹ 60 kilogram bags of 132.276 pounds each. ² Converted to bags of green bean equivalent (GBE) at 1.19 pounds green to 1 pound roasted and 2.6 pounds green to 1 pound soluble. Source: Compiled from U.S. Department of Commerce, Bureau of Census data.

COFFEE

Origin of Green Coffee Imports (for Consumption) into the U.S. In Thousands of 60 Kilo Bags

Year	Angola	Brazil	Colombia	Costa Rica	Domin. Repub.	Ecuador	Ethiopia	Guatemala	Indonesia	Ivory Coast	Mexico	Peru	Philippines	Salvador	Venezuela	Grand Total
1981	21	3,243	1,727	226	359	701	547	645	1,516	602	1,393	439	270	779	27	16,555
1982	63	3,372	1,710	248	500	773	578	844	1,118	998	1,377	513	308	919	16	17,416
1983	27	3,417	1,755	226	430	857	519	887	1,079	674	1,495	439	276	1,214	26	16,449
1984	5	3,866	2,170	258	447	961	423	1,118	1,030	1,144	1,553	557	296	1,052	88	17,734
1985	27	4,148	2,554	360	439	974	195	1,054	1,041	951	1,812	543	407	1,366	107	18,698
1986	6	2,200	2,629	413	488	1,371	243	1,658	1,346	694	2,125	675	440	1,108	224	19,483
1987	3	3,928	2,549	551	446	1,285	421	1,439	911	476	2,764	573	105	1,117	163	19,906
1988 ¹	—	4,213	2,235	233	366	811	218	609	731	654	1,719	436	298	829	72	15,348

¹ Preliminary. Source: U.S. Department of Commerce

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Total Coffee Imports (for Consumption) into the U.S. In Thousands of Metric Tons¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	1,858	1,738	1,395	1,299	1,356	1,026	922	1,213	1,150	1,487	1,565	1,547	16,555
1982	1,287	1,195	1,490	1,147	1,476	1,335	1,282	1,602	1,640	2,005	1,356	1,602	17,416
1983	1,556	1,332	1,373	1,253	1,502	1,034	1,319	1,230	1,532	1,685	1,380	1,253	16,449
1984	1,598	1,299	1,440	1,905	1,615	1,059	1,722	1,735	1,432	1,614	1,127	1,187	17,734
1985	1,622	1,681	1,702	1,430	1,324	1,751	1,217	1,757	1,773	1,385	1,272	1,785	18,698
1986	2,360	1,836	1,645	1,667	1,810	1,286	1,549	1,513	1,641	1,535	1,449	1,192	19,483
1987	1,092	1,218	1,841	1,789	1,883	2,181	1,717	1,481	1,770	2,631	1,246	1,056	19,906
1988 ¹	70.5	101.0	85.6	70.7	68.5	49.9	92.6	97.3	74.3	76.3	71.7	61.6	920.0
1989	98.1	77.7	82.1	83.9	77.2	71.2	99.4	119.7	117.1	130.8			

¹ Prior to 1988 data are in thous of 60 kilo bags. Source: U.S. Dept. of Commerce

T.121

Average Spot Price of Coffee (Brazilian¹) at N.Y. In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	218.0	218.0	218.0	218.0	129.0	115.5	115.5	127.0	127.0	129.5	147.0	150.0	159.4
1982	151.0	136.0	136.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	133.0	133.0	142.0
1983	133.0	133.0	133.0	141.5	141.5	141.5	141.5	143.0	143.0	143.0	143.0	143.0	140.0
1984 ¹	150.0	151.0	151.0	148.0	148.0	147.0	145.0	145.0	146.0	140.0	138.0	138.0	145.6
1985	140.0	145.0	141.0	138.0	138.0	140.0	134.0	133.0	133.0	137.0	155.0	175.0	142.4
1986	241.0	226.0	235.0	228.0	218.0	193.0	188.0	185.0	193.0	187.0	167.0	146.0	200.6
1987	126.5	119.8	103.4	102.1	109.2	108.0	99.8	95.9	96.6	105.4	118.6	119.4	108.7
1988	119.0	127.4	127.3	122.8	121.7	122.5	121.0	111.5	115.1	113.2	116.8	131.1	120.8
1989	146.6	131.1	127.6	126.3	135.6	121.4	88.4	77.8	78.3	70.6	71.5	70.0	103.8

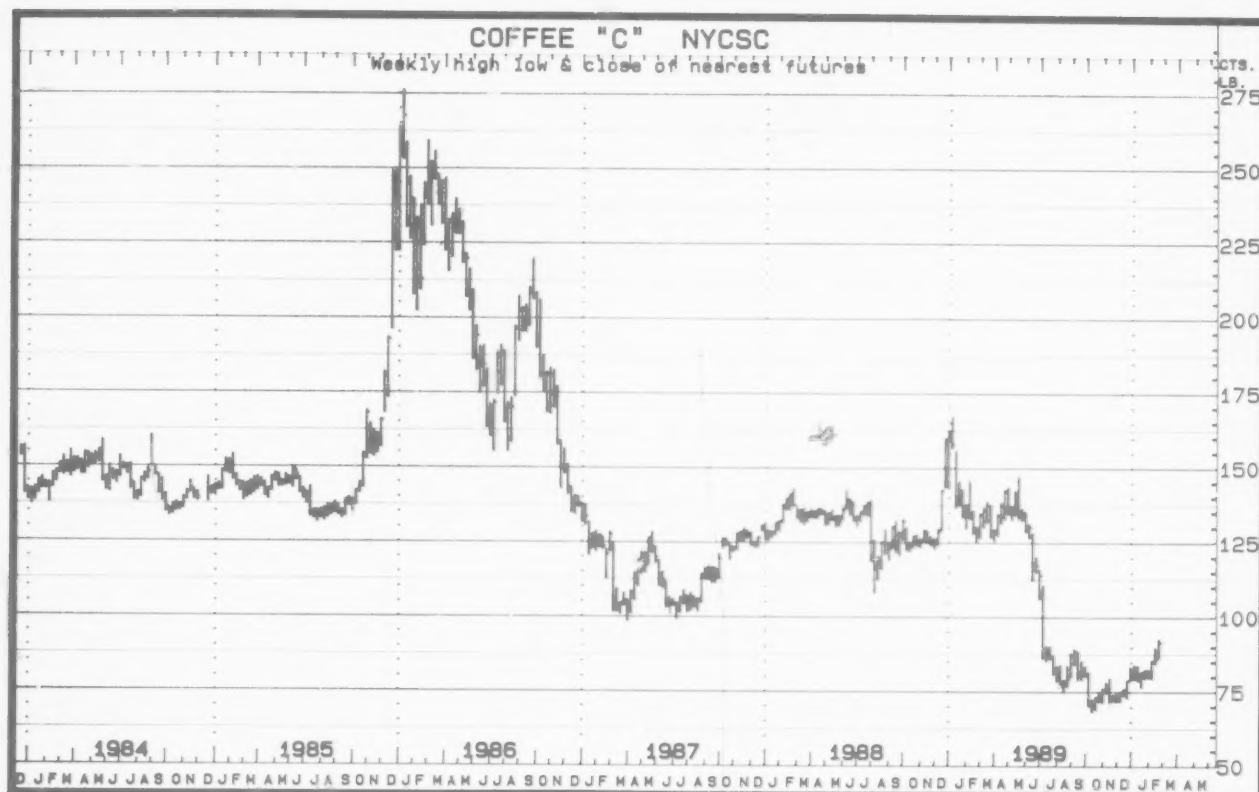
¹ Prices prior to 1984 are for Santos No. 4 at N.Y. Sources: Bureau of Labor Statistics (0191-0101.01); Wall St. Journal CRB.

T.120

U.S. Average Monthly Wholesale Prices of Coffee In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Ground Roast—All Packs													
1985	276.7	277.3	277.8	277.7	279.0	273.0	273.5	273.6	273.9	273.7	275.4	284.0	276.3
1986	334.5	357.5	361.7	367.6	368.9	373.9	366.5	358.0	352.6	350.9	347.7	347.6	357.3
1987	329.6	329.4	319.4	310.1	302.5	300.2	296.4	296.0	279.0	281.4	284.3	283.4	301.0
1988	286.1	287.2	292.8	295.6	295.2	295.7	287.4	288.5	289.4	292.4	288.1	288.8	290.6
1989	294.1	305.3	306.2	305.5	304.8	304.8	303.8	297.8	289.3	285.3	280.6		
Ground Roast in One Lb Cans													
1985	259.7	259.9	261.3	260.8	267.3	258.3	254.6	254.9	254.6	254.6	256.6	268.6	259.3
1986	334.2	345.4	346.7	345.7	350.7	349.4	348.4	350.3	341.7	343.8	334.3	334.5	343.8
1987	311.4	314.3	298.1	296.6	297.3	296.9	291.7	292.5	281.0	282.0	285.6	284.6	294.3
1988	284.0	283.2	294.9	294.2	294.2	298.0	279.5	284.1	283.4	286.7	285.9	285.1	287.7
1989	288.8	301.3	311.1	314.0	314.0	315.2	315.0	308.0	298.5	300.4	301.9		
Soluble Per 16 Ounces													
1985	795.1	789.5	791.5	793.3	790.1	791.1	799.2	801.8	804.1	804.8	817.3	837.8	801.3
1986	932.4	995.4	1012.8	1020.3	1016.1	1014.0	1003.4	956.4	970.8	952.2	977.7	977.7	985.8
1987	943.2	885.2	861.9	861.9	866.5	866.5	846.3	846.3	825.6	830.6	830.6	830.6	857.9
1988	805.8	805.8	815.3	812.6	812.6	812.6	922.0	922.0	922.0	922.0	922.0	922.0	866.4
1989	915.4	948.4	941.9	941.9	941.9	952.3	952.3	921.0	921.0	915.6	915.6		

Source: Bureau of Labor Statistics; Foreign Agricultural Service, U.S.D.A.



High, Low & Closing Prices of May Coffee Futures in New York In Cents per Pound

Year of Delivery	Year Prior to Delivery												Delivery Year					Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May			
1983 High	116.50	118.50	117.50	121.25	117.50	114.00	131.00	131.15	135.40	132.30	127.90	123.95	126.90	126.85	135.17	135.40		
Low	114.00	107.50	109.25	113.50	103.51	107.50	111.00	124.00	126.25	121.60	120.25	118.90	120.35	120.10	124.55	103.51		
Close	114.76	113.00	118.51	118.28	108.25	113.10	129.45	130.49	131.78	125.00	120.60	120.12	123.23	124.80	134.17	—		
1984 High	117.00	117.75	126.00	124.50	124.00	127.25	130.05	137.30	139.90	144.10	139.65	145.00	152.30	154.23	158.50	158.50		
Low	109.50	113.00	116.00	121.50	121.60	122.25	125.25	129.30	134.50	134.30	134.25	132.75	141.90	147.00	147.80	108.50		
Close	115.13	116.75	123.38	122.51	122.26	125.80	129.25	135.50	138.78	135.94	137.05	144.84	151.37	152.20	154.00	—		
1985 High	131.50	138.50	152.00	146.28	140.15	146.00	143.15	135.35	139.15	140.25	147.90	150.70	146.20	147.30	147.50	152.00		
Low	125.28	130.00	137.50	137.75	132.90	133.25	132.75	131.31	134.50	135.60	138.65	139.85	139.25	138.85	143.00	122.01		
Close	131.38	138.50	142.25	137.76	133.48	144.15	133.80	135.05	135.72	140.25	147.24	139.96	144.43	145.80	143.50	—		
1986 High	142.50	145.00	144.50	148.75	143.50	142.13	144.45	161.18	171.45	214.09	272.62	261.00	257.00	243.70	234.25	272.62		
Low	136.59	137.00	141.55	142.28	136.20	137.75	137.15	136.20	155.25	174.90	217.80	207.78	231.15	215.25	202.00	130.25		
Close	141.75	143.00	144.00	144.88	138.65	140.75	140.60	161.18	171.45	241.09	218.51	246.96	246.44	229.07	204.05	—		
1987 High	265.00	261.00	250.00	210.50	198.50	205.00	219.50	189.00	173.00	150.50	137.50	130.50	126.80	121.30	128.00	291.83		
Low	247.00	239.10	210.25	177.00	169.95	165.50	173.00	165.38	149.26	132.50	122.20	115.50	99.90	98.10	114.50	98.10		
Close	265.00	247.38	210.25	180.25	184.50	199.50	192.78	169.38	151.25	138.00	126.99	129.31	100.04	119.30	122.08	—		
1988 High	131.00	128.00	129.75	124.00	114.90	123.90	123.75	131.00	134.85	133.25	134.50	144.40	137.50	136.00	139.75	150.00		
Low	111.75	110.50	119.20	110.00	107.00	109.50	116.50	118.55	128.75	128.15	128.00	134.40	131.70	130.60	130.10	107.00		
Close	111.75	123.01	124.00	111.31	109.45	122.90	118.88	129.06	131.58	128.38	134.29	135.31	134.51	130.60	131.10	—		
1989 High	144.40	144.00	140.60	143.75	135.00	126.75	132.00	129.70	128.13	158.00	159.20	137.00	133.24	143.20	147.00	159.20		
Low	140.00	135.75	133.35	130.25	118.75	112.13	120.55	123.70	122.00	121.40	128.00	122.90	125.55	127.30	132.75	112.13		
Close	142.50	136.90	136.00	131.25	124.13	122.50	132.00	124.88	122.80	152.86	128.59	127.32	128.13	134.70	142.85	—		
1990 High	120.85	124.48	124.50	123.00	108.00	91.00	92.35	85.50	83.55	85.50								
Low	115.25	113.50	113.50	105.00	85.70	82.25	83.05	72.75	76.30	77.40								
Close	116.38	117.00	118.50	110.50	85.94	90.25	85.13	78.80	79.90	81.45								

Source: N.Y. Coffee, Sugar & Cocoa Exchange, Inc.

T.125

COFFEE

Month-End Open Interest of Coffee Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	10,752	10,336	11,739	11,752	11,317	7,885	8,042	9,351	9,439	9,420	8,600	7,706
1984	8,086	10,963	13,012	11,649	9,841	9,437	10,303	10,405	10,300	10,400	10,143	12,431
1985	14,435	12,454	12,973	13,230	12,606	10,561	11,783	10,148	10,066	11,873	11,776	13,167
1986	13,062	15,758	15,611	16,285	16,765	15,492	17,011	15,908	19,171	18,769	15,081	14,928
1987	15,679	16,881	18,811	21,389	22,110	21,326	22,936	25,480	25,910	24,179	21,491	21,921
1988	22,724	26,352	23,017	20,830	23,901	20,655	22,636	23,080	23,008	21,693	18,287	23,156
1989	24,979	22,534	23,891	25,602	25,172	24,996	29,707	32,210	32,912	35,779	30,557	35,378

Source: N.Y. Coffee, Sugar & Cocoa Exchange, Inc.

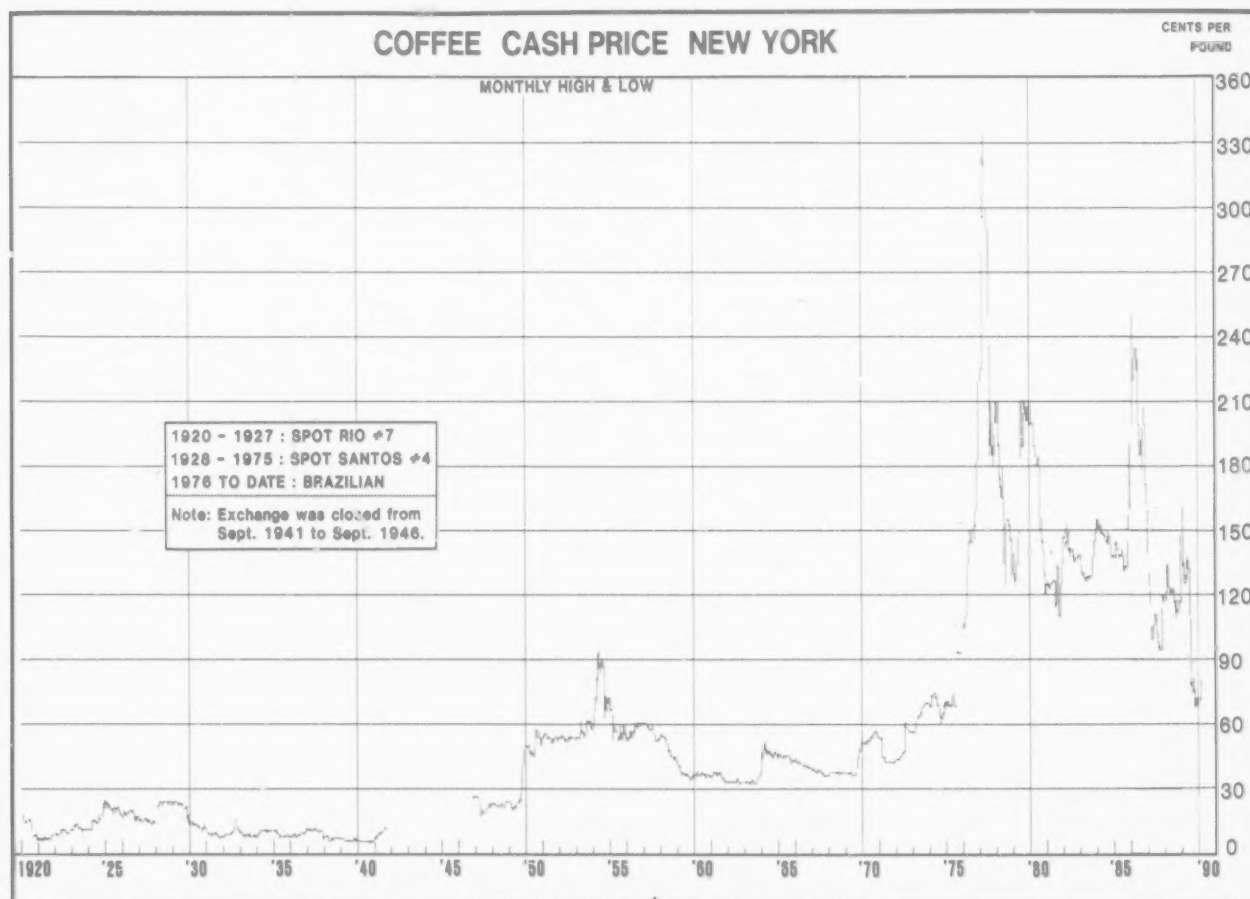
T.124

Volume of Trading of Coffee "C" Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	30,567	32,884	44,211	37,399	44,917	45,575	26,065	32,818	22,579	38,999	34,428	36,999	427,441
1984	33,327	44,890	46,793	46,833	51,174	42,891	34,956	48,979	43,159	29,703	37,457	36,094	499,133
1985	48,733	54,809	52,365	58,531	38,755	54,725	42,222	39,425	23,615	58,870	83,845	94,671	650,768
1986	113,305	95,509	76,787	82,308	75,176	87,323	78,670	106,366	93,465	112,685	89,713	61,835	1,073,142
1987	69,564	81,427	78,671	104,350	71,189	86,564	77,621	106,182	77,207	85,315	72,846	53,650	964,586
1988	67,955	119,075	85,154	80,772	73,379	125,684	91,569	118,956	88,460	83,713	85,366	129,627	1,149,710
1989	141,903	106,019	102,594	129,018	95,902	134,848	100,700	122,207	97,744	104,100	111,434	82,484	1,328,953

Source: N.Y. Coffee, Sugar & Cocoa Exchange, Inc.

T.123



Coke

U.S. Salient Statistics of Coke In Thousands of Short Tons

Year	Production ²	Domestic Consumption	Producers' Stocks—Jan. 1—					Exports to						Korea Rep.	Turkey	Venezuela	Avg. Price of Coke Exports \$ SH. Ton
			Total	Merchant	Overn Coke at Plants	Furnace	Petroleum Coke	Exports	Imports	Canada	Mexico	Bel./Lux.	Netherlands				
1977	53,509	54,144	6,487		314	6,173	2,127	1,241	1,829	634.9	49.4						
1978	49,009	56,948	6,444		136	6,308	2,050	693	5,722	299	37.4						
1979	52,943	53,826	3,534		184	3,350	2,214	1,440	3,974	598	61.0						
1980	46,132	41,278	5,185		595	4,590	1,042	2,071	659	812	75.0						
1981	42,786	44,046	8,627		1,106	7,521	846	1,170	527								
1982	28,115	25,776	6,724		403	6,324	900	993	120	449.7	72.0	99.3	132.7	4.5	—	40.1	61.81
1983	25,808	29,850	8,190		331	7,858	1,344	665	35	471.2	55.8	24.7	24.0	—	—	7.0	68.53
1984	30,561	29,899	3,518		286	3,233	1,096	1,045	582	477.0	72.8	106.4	150.2	64.8	80.1	65.8	66.48
1985	28,651	29,270	3,716		353	3,363	968	1,122	578	407.3	97.3	108.8	68.0	.1	57.6	42.6	68.40
1986	25,540	25,351	2,553		404	2,148	1,232	1,004	329	476.9	78.3	59.0	60.7	—	17.4	20.4	65.23
1987	28,037	29,387	2,066		288	1,778	1,206	574	922	248.2	106.4	21.5	—	.2	32.0	89.6	83.58
1988 ¹	32,400	33,480	1,064		218	846	1,350	1,093	2,688	347.8	101.2	—	15.3	—	34.2	94.7	70.57
1989 ³	32,400	35,400	1,583		163	1,420	1,558	864	3,232								

¹ Preliminary. ² Beehive and oven, coke & breeze. ³ Estimate. Source: Bureau of Mines

T.127

Petroleum Coke Production in the United States In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	2,469	2,215	2,502	2,608	2,748	2,892	2,962	2,978	2,684	2,942	2,899	3,305	33,204
1986 ¹	3,161	2,825	3,027	2,865	3,191	3,176	3,059	3,230	3,171	3,066	2,925	3,206	36,903
1987 ¹	3,208	2,919	3,044	2,974	3,087	3,121	3,190	3,138	3,047	3,060	3,158	3,384	37,380
1988 ¹	3,464	3,164	3,414	3,159	3,357	3,274	3,326	3,343	3,205	3,281	3,347	3,462	39,811
1989 ¹	3,505	2,931	3,201	3,200	3,337	3,406	3,509	3,447	3,255				

¹ Preliminary. Source: Bureau of Mines

T.128

United States Coke Production & Stock In Thousands of Short Tons

Year	Production					Stocks							
	Jan.—Mar.	Beehive & Oven (Byproduct) Apr.—June	July—Sept.	Oct.—Dec.	Total	Oven-coke Plants				Petroleum Coke			
						Jan. 1	Apr. 1	July 1	Oct. 1	Jan. 1	Apr. 1	July 1	Oct. 1
1980	13,042	12,320	10,052	10,718	46,132	5,185	5,832	7,426	9,018	1,042			
1981	11,178	9,853	11,175	10,580	42,786	8,627	7,586	4,990	5,198	846	948	758	765
1982	8,828	7,507	6,270	5,509	28,115	6,724	7,455	7,871	7,969	900	939	1,091	1,244
1983	5,579	6,451	6,753	7,025	25,808	8,190	5,781	4,569	3,875	1,344	1,317	1,231	964
1984	7,696	8,227	7,522	7,115	30,561	3,518	3,153	2,966	3,441	1,096	1,116	912	991
1985	7,211	7,601	7,150	6,689	28,651	3,716	3,471	3,279	3,217	968	1,086	1,100	950
1986	7,252	7,156	5,513	5,618	25,540	2,553	2,319	2,174	2,141	1,232	1,457	1,366	1,296
1987 ¹	5,937	7,073	7,438	7,589	28,037	2,066	1,853	1,546	1,436	1,206	1,437	1,309	1,086
1988 ¹	7,347	8,311	8,195	8,251	32,405	1,064	902	1,140	1,271	1,350	1,441	1,636	1,427
1989 ¹	8,006	8,194				1,583	1,167	1,264		1,558	1,655	1,813	1,724

¹ Preliminary. Source: Energy Information Administration

T.131

Average Price² of U.S. Coke Exports

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984							64.64				58.31		66.48
1985		83.30			56.97		68.64				74.09		68.40
1986		95.31			72.58		55.03				55.93		65.23
1987		88.36			85.34		80.57				80.73		83.58
1988 ¹		79.31			66.79		78.35				65.30		70.57
1989 ¹		47.36											

¹ Preliminary. ² Based on the free alongside (F.A.S.) value. Source: Bureau of Labor Statistics (0522-0101)

T.130

Copper

U.S. mine production of copper rose by 5.6 percent in 1989 to 1.5 million tonnes, according to an estimate by the U.S. Bureau of Mines. Copper recovery from old scrap increased by 8 percent to 560,000 tonnes. Recovered copper represented about 25 percent of U.S. apparent consumption of 2.25 million tonnes. As a result, U.S. reliance on imports fell to 9 percent of apparent consumption from 18 percent a year earlier.

There were sharp increases in U.S. exports of ores and concentrates and of refined copper and copper scrap, in response to continued tight supplies because of production disruptions in several exporting nations.

Although world mine production was estimated to have risen to 8.83 million tonnes in 1989 from 8.453 million, copper output was restrained by some strikes, smelter problems in Arizona and Chile, and political turmoil in several major exporting nations. Even with these disruptions, copper prices retreated from an all-time high of 165 cents/lb., set on December 21, 1988 (basis Conn. cathodes). Cash cathodes ended 1989 at 109 cents/lb., down 34 percent from the high.

The world's largest open-pit copper mine, located on the island of Bougainville in Papua New Guinea, was forced to close in May 1989, because of attacks from rebel landowners. In January 1990, the mine's owners mothballed the 180,000-tonne-per-year (contained copper content) facility because of the attacks. Most of its concentrates went to Japanese smelters, which apparently had found other sources.

Labor contract negotiations temporarily closed Canada's Highland Valley Mine in the summer of

1989, and Mexico's bankrupt Cananea mine was closed in the fall.

The BOM estimated that U.S. apparent copper consumption would rise in 1990 to nearly 2.3 million tonnes. For 1989, 42 percent of the copper consumed in the U.S. went into building construction, as building wiring and in plumbing and heating systems. Other major uses were: electrical and electronic products, 23 percent; industrial machinery and equipment, 14 percent; transportation (the copper-containing components of cars, trucks and buses), 12 percent; and consumer and general products, 9 percent.

Domestic copper producers continued to expand the use of solvent extraction electrowinning (SX-EW), in which copper is chemically leached from low-grade copper wastes or from oxide ore deposits at cash costs of less than 30 cents/lb. Capital costs were about 50 percent lower than the traditional smelting methods, which are still required for other copper-containing ores. At the end of 1989, SX-EW accounted for about 18 percent of U.S. primary copper production, up from 12 percent in 1987. That was expected to rise to 21 percent by 1994.

Futures Markets

The COMEX standard-grade copper futures contract ceased trading with the expiration of the December 1989 contract. It was replaced by a high-grade copper contract. Cash copper and futures are also traded on the London Metal Exchange. Options are traded on both exchanges.

World Mine Production of Copper (Content of Ore) In Thousands of Metric Tons

Year	Australia	Canada ³	Chile	China	Finland	Japan	Mexico	Peru	Zambia	Poland	Zaire	South Africa	Philippines	United States ³	USSR ³	World Total ¹
1981	231.3	691.3	1,081	170.0	38.5	51.5	232.9	342.1	588.0	294.6	555.1	199.4	302.3	1,538	570.0	7,777
1982	245.3	612.4	1,242	175.0	37.8	50.7	229.2	353.8	574.5	376.0	519.0	188.7	292.1	1,147	560.0	7,622
1983	261.5	653.0	1,255	175.0	39.3	46.0	196.0	318.8	541.0	402.3	536.5	205.0	271.4	1,038	570.0	7,659
1984	235.7	721.8	1,308	180.0	31.3	43.3	303.5	353.9	532.7	431.0	562.0	198.2	233.4	1,103	590.0	7,999
1985	259.8	738.6	1,360	185.0	28.0	43.2	276.1	391.3	458.6	431.3	557.9	195.4	222.2	1,106	600.0	8,080
1986	245.4	698.5	1,399	185.0	25.9	34.9	285.0	397.4	461.9	434.0	563.0	184.2	222.6	1,147	620.0	8,125
1987 ³	223.0	767.3	1,418	300.0	20.4	22.0	300.0	392.3	470.0	437.0	564.0	213.0	215.0	1,270	630.0	8,475
1988 ¹	246	757	1,472					298	416	440	530		218	1,420	640	8,453
1989 ¹	290	760	1,580					360	450	440	470		210	1,500	650	8,830

¹ Estimate. ² Preliminary. ³ Recoverable. Source: Bureau of Mines

T.132

Commodity Exchange Inc. (COMEX) Warehouse Stocks of Copper In Thousands of Short Tons

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1983	274.4	278.5	293.6	306.1	325.9	336.5	347.4	360.1	374.5	389.3	396.1	404.2
1984	409.2	417.7	409.9	403.2	392.3	372.5	361.6	335.6	320.6	310.8	300.7	288.1
1985	276.3	258.2	238.8	224.8	214.3	201.0	186.4	167.7	155.0	149.0	136.4	124.6
1986	120.3	120.1	118.5	116.4	114.5	108.5	103.4	95.7	90.6	86.6	81.0	84.0
1987	93.3	102.8	108.9	97.5	88.4	71.4	65.3	69.0	73.5	89.2	66.2	33.7
1988	18.5	16.9	16.8	11.8	10.2	19.0	16.9	24.6	22.3	13.6	9.5	5.9
1989	13.4	14.9	17.3	29.7	21.2	25.2	23.0	20.4	15.2	11.4	10.4	9.1
1990	16.3	7.2										

Source: Commodity Exchange, Inc. N.Y. (COMEX)

T.144

U.S. Salient Statistics of Copper In Thousands of Metric Tons

Year	New Copper Produced					Secondary Recovery ⁷	Imports ³		Exports		Stocks—Dec 31			Appar. Consumption ⁵	
	From Domestic Ores ¹		Refineries	From Foreign Ores ²	Total New		Unmanufactured	Refined	Ore, Concentrate ⁶	Refined ⁶	N.Y. Commodity Exch.	Primary Producers (Refined)	Blister & Materials in Solution	Refined Copper (Reported)	Primary & Old Copper ⁸
	Mines	Smelters													
1979	1,447	1,313	1,413	104	1,517	604	282	204	231	74	90	64	275	1,735	2,432
1980	1,181	994	1,126	89	1,215	613	555	427	107	14	163	49	272	1,862	2,179
1981	1,538	1,295	1,419	125	1,544	592	447	331	151	24	170	151	277	2,025	2,292
1982	1,147	941	1,050	176	1,227	518	525	258	195	31	248	268	233	1,658	1,762
1983	1,038	888	1,028	154	1,182	449	675	460	50	81	371	154	174	1,804	2,013
1984	1,103	990	1,090	75	1,165	461	552	445	69	91	251	125	245	2,123	2,107
1985	1,106	939	1,004	54	1,057	503	444	378	116	38	109	66	146	1,976	2,144
1986	1,147	908	1,074	N.A.	1,074	477	598	502	174	12	84	36	135	2,103	2,136
1987	1,256	972	1,146	N.A.	1,146	498	568	469	125	9	17	29	150	2,152	2,217
1988 ¹	1,420	1,043	1,406		1,400	519	475	332	211	58	12	98	119	2,210	2,214
1989 ⁹	1,500	1,070	1,460		1,420	560		300		110	20	100	100	2,210	2,205

¹ Preliminary. ² Also from matte, etc., refinery reports. ³ For consumption. ⁴ Blister (copper content). ⁵ Ingots, bars, etc. ⁶ Withdrawals from total supply on domestic account. ⁷ From old scrap only. ⁸ Old scrap only. ⁹ Estimate. Source: Bureau of Mines T.133

Consumption of Refined Copper² in the United States In Thousands of Metric Tons

Year	By-Products						By Class of Consumer							Total Consumption
	Cathodes	Wire Bars	Ingot & Ingot Bars	Cakes & Slabs	Billets	Other	Wire Mills	Brass Mills	Chemical Plants	Ingot Makers	Foundries	Miscellaneous		
1979	1,099.0	701.9	92.1	105.6	129.5	30.4	1,499.6	610.2	.4	6.3	11.9	30.1	2,158.4	
1980	960.2	583.0	67.6	84.3	117.4	49.7	1,308.9	511.6	.3	5.0	10.9	25.3	1,862.1	
1981	1,198.9	489.2	66.7	121.8	101.9	46.7	1,449.6	536.2	.4	5.4	11.3	22.2	2,025.2	
1982	1,211.0	195.1	45.1	92.4	82.2	32.4	1,232.8	393.2	.4	4.4	7.6	19.7	1,658.1	
1983	1,448.1	77.4	53.2	115.3	101.8	8.2	1,269.9	500.3	.6	3.2	11.3	18.8	1,803.9	
1984	1,635.4	72.1	74.4	127.7	118.5	8.2	1,401.7	514.0	.7	5.3	19.8	34.6	1,976.0	
1985	1,563.4	70.3	64.2	115.8	139.6	22.8	1,401.7	564.9	.9	1.4	20.6	22.9	2,101.5	
1986	1,717.7	52.5	105.9	81.6	127.9	16.9	1,491.9	564.9	.9	1.4	20.6	22.9	2,102.6	
1987 ¹	1,849.2	14.4	113.3	68.4	86.5	20.0	1,595.6	514.5	1.2	1.4	16.6	22.5	2,151.8	
1988 ³							1,673.6	486.8					2,210.5	
1989 ³							1,620	460					2,200	

¹ Preliminary. ² Primary & secondary. ³ Estimate. Source: Bureau of Mines T.134

U.S. Mine Production of Recoverable Copper, by Selected States In Thousands of Metric Tons

Year	Arizona	California	Colorado	Idaho	Michigan	Missouri	Montana	Nevada	New Mexico	Pennsylvania	Tennessee	Utah	Maine	Other States ²	Total
1980	770.1	N.A.	.5	3.1	N.A.	13.6	37.7	N.A.	149.4	—	N.A.	157.8	—	48.9	1,181.1
1981	1,040.8	N.A.	N.A.	4.2	N.A.	8.4	62.5	N.A.	154.1	—	N.A.	211.3	—	56.8	1,538.2
1982	769.5	N.A.	.6	3.1	N.A.	7.9	65.0	N.A.	N.A.	—	N.A.	189.1	—	111.8	1,147.0
1983	678.2	N.A.	N.A.	3.6	—	7.7	33.3	N.A.	N.A.	—	N.A.	169.8	—	145.5	1,038.1
1984	746.5	N.A.	N.A.	3.7	—	5.8	N.A.	N.A.	N.A.	—	N.A.	N.A.	—	317.6	1,091.3
1985	796.6	N.A.	N.A.	3.6	N.A.	13.4	15.1	Not Available						277.1	1,105.8
1986	789.2							Not Available						358.1	1,147.3
1987 ¹	764.1							Not Available						491.8	1,255.9
1988 ³	845.4							Not Available						574.2	1,419.6
1989 ³	880							Not Available						620	1,500

¹ Preliminary. ² Also includes N.A. States. ³ Estimate. Source: Bureau of Mines T.135

U.S. Scrap Copper Intake by Refiners in Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	23.2	22.1	25.5	25.5	22.0	22.5	20.1	21.0	20.1	25.4	20.6	18.2	266.2
1984	17.6	19.2	19.9	21.3	22.0	18.7	18.4	19.8	17.3	22.3	21.2	15.0	232.9
1985	28.1	29.4	32.0	23.9	40.7	27.5	25.6	24.2	28.5	36.1	31.8	35.1	363.0
1986 ¹	34.2	31.3	30.4	34.3	33.2	32.7	29.0	26.1	34.8	37.1	28.1	33.0	406.2
1987 ¹	28.7	31.6	40.1	42.3	34.0	35.1	29.5	33.2	34.5	35.8	30.8	37.1	414.7
1988 ¹	34.5	35.6	43.2	36.9	37.2	36.9	29.7	37.1	42.3	37.0	37.5	40.2	453.3
1989 ¹	37.4	40.8	47.0	40.1	41.7	42.8	37.9	43.2	43.8				

¹ Preliminary Source: American Bureau of Metal Statistics, Inc.; Bureau of Mines

COPPER

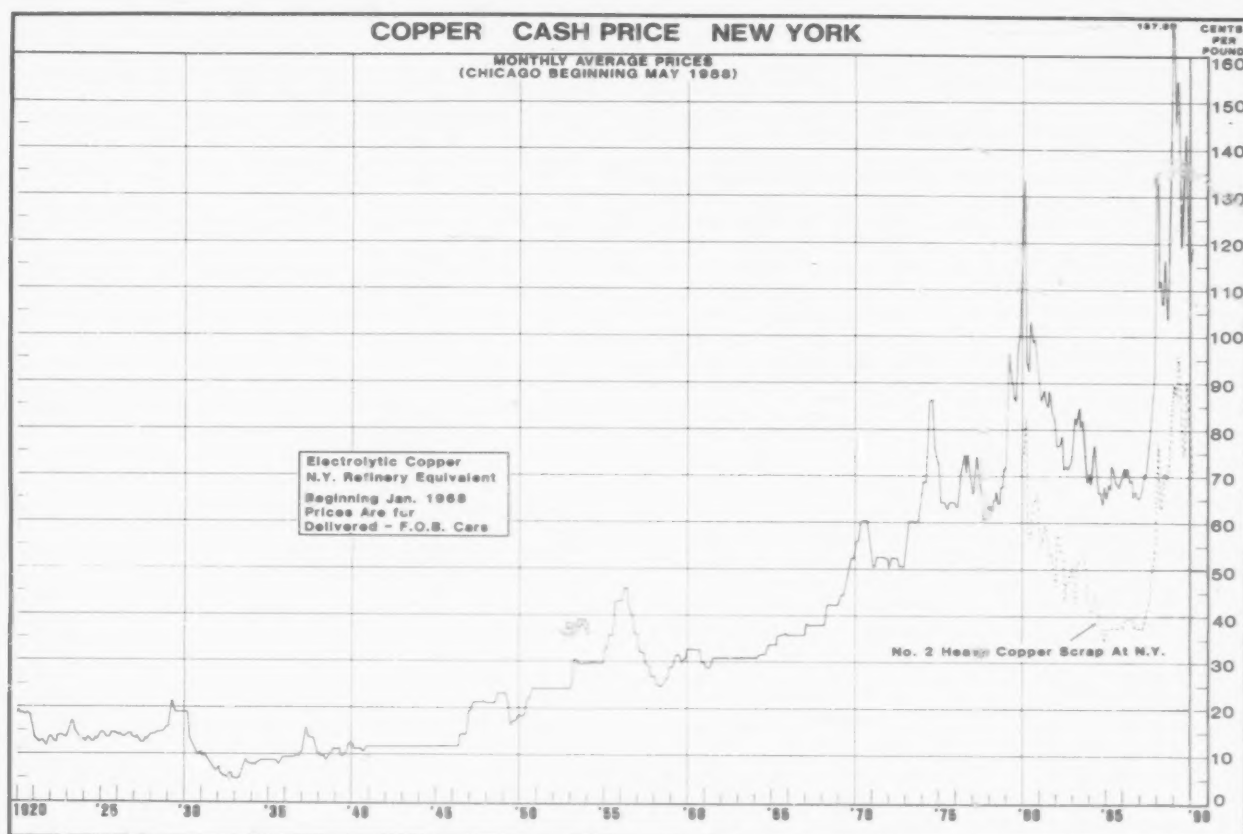


High, Low & Closing Prices of May Copper Futures on the Commodity Exch., Inc., N.Y. (COMEX) ¢ Lb.

Year of Delivery	Year Prior to Delivery															Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1984 High	85.40	86.00	87.60	83.80	85.05	83.00	78.95	71.70	70.65	69.40	68.10	67.30	71.80	71.75	65.65	88.60
Low	78.05	81.70	83.70	80.25	80.60	77.30	69.80	64.90	64.00	64.60	62.50	63.90	65.60	63.90	61.40	61.40
Close	82.60	84.30	84.80	81.25	82.45	77.60	70.25	66.10	69.15	68.30	65.70	66.10	71.75	64.45	64.55	—
1985 High	71.80	79.10	73.35	71.75	67.10	66.60	65.15	62.75	62.70	60.90	64.40	64.20	63.15	66.55	65.30	92.00
Low	65.60	72.00	69.10	65.35	61.80	62.00	58.90	58.45	59.05	56.40	56.20	57.95	59.10	60.80	60.60	56.20
Close	71.75	72.40	70.95	67.35	61.90	66.05	60.55	62.75	59.85	57.85	63.15	59.60	62.60	60.95	62.20	—
1986 High	65.65	68.50	68.00	64.35	66.15	64.70	62.90	63.85	63.45	65.35	68.00	67.50	69.15	66.30	63.95	69.15
Low	62.80	63.55	63.00	61.65	61.50	61.60	60.00	61.15	60.80	61.60	64.50	64.55	63.60	62.15	61.60	60.00
Close	65.65	63.55	63.95	62.00	63.45	63.05	60.55	61.50	62.10	64.45	67.15	66.05	66.15	62.25	62.85	—
1987 High	70.10	67.75	65.55	65.50	62.10	60.95	63.45	61.55	61.85	62.00	62.85	64.15	65.20	63.70	69.45	70.10
Low	66.35	63.80	63.65	61.30	59.90	58.60	57.75	59.25	59.65	60.40	60.60	60.85	62.40	61.30	62.40	57.75
Close	68.30	63.80	64.35	61.60	60.10	59.40	61.80	59.80	61.55	61.75	60.95	63.40	62.45	62.30	65.70	—
1988 High	65.65	64.50	68.35	69.50	74.25	75.65	80.30	86.50	104.40	108.20	109.00	100.80	107.30	107.50	103.90	109.00
Low	63.25	62.80	63.50	66.05	69.90	70.50	71.90	71.80	78.50	89.10	83.00	79.10	87.40	88.50	93.00	57.75
Close	63.25	63.30	65.35	69.20	73.70	72.70	77.90	77.20	95.60	108.20	85.85	86.30	105.30	93.80	98.80	—
1989 High	85.40	83.30	83.40	85.00	89.00	93.60	97.00	114.25	125.50	133.00	139.30	133.10	146.00	145.20	138.50	146.00
Low	79.10	77.30	77.45	78.70	81.60	83.70	89.80	95.30	103.40	120.20	123.25	117.00	130.10	126.70	108.50	73.20
Close	82.00	81.85	80.25	83.00	85.50	93.60	95.20	112.00	124.00	125.00	132.50	131.20	132.60	138.70	110.80	—
1990 ¹ High	—	116.00	114.60	108.40	102.45	118.90	118.00	120.70	113.50	107.00	110.00	—	—	—	—	—
Low	—	112.00	109.60	101.00	95.85	102.25	112.40	110.05	103.70	100.90	94.50	—	—	—	—	—
Close	—	113.80	111.70	101.40	101.70	118.90	115.25	111.00	106.80	105.20	97.30	—	—	—	—	—

¹ HG Grade Contract. Source: Commodity Exchange, Inc. of N.Y. (COMEX)

COPPER



Producers' Prices of Electrolytic (Wirebar) Copper, Delivered U.S. Destinations In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	118.05	133.83	106.23	94.61	93.16	92.39	103.10	100.60	98.73	99.41	96.98	89.20	102.19
1981	88.64	86.07	87.32	88.44	86.33	85.68	84.71	87.98	85.63	83.28	82.09	80.94	85.59
1982	79.42	79.35	76.45	76.99	78.78	71.43	71.78	71.83	71.37	71.92	72.28	73.17	74.56
1983	79.03	82.72	81.09	82.44	84.80	80.90	81.81	79.80	76.75	71.58	68.64	70.43	78.33
1984	69.08	69.51	74.18	76.58	71.56	69.19	66.34	66.44	65.39	63.92	67.71	65.28	68.77
1985	66.23	68.32	67.19	72.17	71.89	68.86	68.53	68.32	67.66	68.60	68.37	70.10	68.85
1986	71.57	70.21	71.78	70.55	68.69	69.15	65.47	64.12	66.82	65.61	65.06	65.91	67.91
1987	67.29	67.87	70.50	69.83	73.54	76.71	83.10	84.94	88.04	91.52	109.59	134.71	84.80
1988	135.63	110.58	111.99	107.51	106.91	116.46	107.90	103.62	118.04	126.38	159.08	167.80	114.50
1989	164.21	146.17	154.89	150.26	132.72	121.45	119.27	133.75	143.60	137.61	123.59	115.64	136.93

Source: American Metal Market

T.136

Month-End Open Interest of Copper Futures at COMEX In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	47,300	47,641	48,699	49,784	52,527	52,325	54,011	54,781	57,153	58,054	52,654	52,226
1982	56,469	60,458	62,817	67,700	74,353	65,938	66,049	64,615	69,845	79,365	85,824	92,146
1983	113,044	121,875	116,706	105,451	99,198	101,350	109,829	106,882	108,357	104,204	104,087	106,898
1984	115,648	100,663	107,730	96,293	92,254	82,836	82,946	84,991	83,606	88,418	83,433	86,502
1985	94,398	82,182	82,195	85,676	82,369	84,913	78,227	75,187	77,106	75,868	76,106	77,790
1986	89,213	79,497	91,606	73,828	71,286	65,698	62,060	60,118	65,370	70,396	74,353	77,988
1987	75,844	77,526	76,775	67,052	72,441	89,640	87,353	64,979	62,572	49,383	44,425	41,206
1988	44,423	34,590	40,060	30,434	28,841	37,556	27,437	33,608	36,473	38,036	36,013	31,083
1989	34,883	34,560	33,276	35,516	28,702	26,665	24,219 ¹	30,477	24,342	29,982	31,707	29,987

¹Includes high grade copper contracts from July thru Dec. 1989. 2,353 contracts for July & 29,987 for Dec. Source: Commodity Exchange, Inc. of N.Y. (COMEX)

T.142

COPPER

U.S. Imports (for Consumption) of Copper (Unmanufactured), by Sources and Types In Ths. Tonnes

Year	Ore & Concentrates	Blister	Matte	Re-fined	Scrap	Australia	Canada	Mexico	W. Germany	Chile	Peru	Philippines	Yugoslavia	Zaire	Zambia	South Africa	Total U.S. Imports
1980	52.4	44.5	.4	426.9	22.8	5.4	152.4	8.3	.5	126.6	52.5	8.9	4.5	5.0	64.9	2.2	547.0
1981	39.1	30.1	2.7	330.6	27.0	1.5	108.5	23.8	—	137.8	52.0	20.4	2.4	24.7	44.1	—	429.6
1982	118.1	97.4	4.1	258.4	28.1	3.7	111.0	64.4	—	233.0	26.8	27.1	—	19.6	10.5	—	506.0
1983	90.6	46.4	3.3	459.6	23.1	—	153.8	44.7	—	292.4	38.9	11.4	—	29.1	24.7	14.0	622.9
1984	11.1	38.9	2.1	444.7	23.0	3.8	177.6	9.5	—	149.4	63.0	6.7	—	28.0	59.5	.5	519.8
1985	2.9	13.0	4.0	377.7	23.0	—	—	—	—	—	—	—	—	—	—	—	420.6
1986	4.2	34.5	.7	502.0	27.2	1.1	223.5	24.1	.3	182.5	46.9	1.0	—	36.0	28.7	10.1	568.7
1987 ¹	2.3	24.1	6.9	469.2	33.1	—	236.8	18.7	24.0	206.8	37.2	—	4.2	24.0	19.8	9.8	535.6
1988 ²	2.8	98.5	5.5	331.7	37.2	—	—	—	—	—	—	—	—	—	—	—	475.5
1989 ³	2.0	8.0	3	300	30	—	—	—	—	—	—	—	—	—	—	—	400

Note: Includes refined; black, blister, & converter; scrap; & copper content of ore, matte, and regulus. ¹ Preliminary. ² Estimate. Source: Department of Commerce; Bureau of Mines T.137

United States Exports of Refined Copper¹ to Selected Countries In Thousands of Metric Tons

Year	Total U.S. Exports	United Kingdom	China: Mainland	Belgium	Brazil	Canada	France	W. Germany	Korea Rep.	Italy	Netherlands	Taiwan	Sweden	Mexico	Japan
1980	14.5	2.0	—	.6	1.5	2.9	1.9	.8	—	1.4	.6	.3	.1	.9	.8
1981	24.4	1.3	—	—	.8	6.4	1.1	1.1	—	.7	—	—	—	7.2	3.9
1982	30.6	1.3	16.1	—	.4	2.8	1.1	1.9	—	.1	3.3	—	—	—	.8
1983	81.4	.4	2.2	.7	—	1.7	.6	2.2	—	—	60.6	1.0	.1	5.3	5.7
1984	91.4	.7	.1	—	—	2.9	.8	1.2	—	—	6.4	3.2	—	2.8	71.2
1985	37.9	.7	—	.5	—	3.5	.3	1.3	—	—	17.3	1.5	—	4.2	5.0
1986	12.5	2.2	—	—	.1	3.7	.4	1.4	1.3	.1	—	2.2	.1	.2	—
1987 ²	9.2	.9	—	—	.1	1.7	.4	.4	1.8	.2	—	.2	—	.5	2.5
1988 ³	58.3	2.3	3.5	—	—	3.8	1.5	1.3	6.1	4.5	8.7	1.6	—	8.5	13.5
1989 ³	110	1.0	16.0	—	—	3.0	1.0	1.5	3.0	1.0	.4	30.0	—	3.5	35.0

¹ Bars, ingots or other forms. ² Preliminary. ³ Estimate. Source: Department of Commerce T.138

Dealers' Buying Price of No. 2 Heavy Copper Scrap in the Chicago Area² In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	74.91	82.35	70.30	60.18	57.60	56.50	65.36	64.88	64.21	65.37	66.08	58.36	65.51
1981	57.60	55.50	57.14	59.50	58.20	55.32	52.68	53.50	53.00	50.16	48.08	46.00	53.89
1982	57.43	57.20	53.76	53.99	53.38	43.24	47.12	46.49	47.83	48.79	48.61	50.75	50.73
1983	42.55	46.71	51.50	51.50	53.74	54.50	54.50	53.54	51.74	48.12	43.30	42.50	49.52
1984	41.17	40.60	43.59	44.50	43.30	42.21	39.36	38.50	38.08	36.20	34.50	35.67	39.81
1985	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50
1986	38.23	39.50	39.50	39.50	39.50	39.50	39.50	37.79	37.50	37.50	37.50	37.50	38.59
1987	37.50	37.50	37.86	39.50	41.15	42.50	44.68	49.07	49.50	53.32	55.39	64.73	46.06
1988	77.10	68.00	63.50	63.12	70.07 ¹	70.59	69.80	69.54	72.36	78.93	83.66	85.50	72.68
1989	89.83	87.13	95.33	95.95	91.14	80.27	74.45	75.54	86.50	90.32	86.00	80.25	86.06

¹ Prior to May 1988, prices are for the N.Y. area. Source: American Metal Market T.140

Volume of Trading of Copper Futures¹ at COMEX In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	243,069	205,232	185,692	121,708	102,054	130,678	148,698	125,062	169,370	132,850	127,110	156,556	7,848,080
1981	116,295	131,960	143,662	140,605	104,376	158,396	125,109	190,763	148,456	114,960	144,453	128,345	1,647,380
1982	112,118	166,562	135,434	179,854	174,157	249,276	197,828	245,973	169,909	231,771	273,546	226,257	2,362,625
1983	306,001	381,645	320,574	278,655	226,482	309,540	213,832	295,470	188,201	230,063	289,111	147,340	3,186,914
1984	199,461	259,881	217,635	269,765	196,382	223,551	152,424	215,226	149,465	170,568	279,151	172,856	2,514,311
1985	254,052	261,784	167,686	310,487	215,079	209,506	146,396	195,882	138,803	178,728	200,142	166,007	2,444,552
1986	190,983	206,513	197,818	240,770	106,750	200,547	89,818	145,468	123,779	121,361	162,963	85,439	1,872,209
1987	124,845	178,598	165,216	170,827	208,696	306,029	272,794	214,181	193,035	276,491	278,985	179,481	2,569,178
1988	210,209	222,625	194,722	151,177	130,289	179,991	120,088	142,945	141,899	186,220	258,725	173,569	2,112,459
1989	216,282	200,945	226,425	201,677	193,956 ¹	174,055	132,793	173,273	151,097	176,822	154,241	93,244	2,096,548
1990	152,156	—	—	—	—	—	—	—	—	—	—	—	—

¹ Beginning May 1989 thru Dec. 1989 High Grade Contracts are included (May total was 353 contracts.) Source: Commodity Exchange, Inc. of N.Y. (COMEX) T.143

U.S. Foreign Trade of Refined Copper In Thousands of Metric Tons

Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	Imports	56.1	31.8	51.0	60.3	43.5	49.6	63.0	33.6	29.1	51.9	26.9	24.6	521.3
	Exports	17.5	14.4	8.9	6.8	14.7	1.6	14.0	2.3	2.2	1.9	2.8	6.9	93.9
1985	Imports	46.7	21.8	31.8	22.3	26.8	41.5	27.2	25.7	34.6	22.0	40.4	49.9	390.7
	Exports	5.3	5.8	10.8	3.7	1.3	3.9	5.7	6.8	1.5	1.3	.9	1.1	48.1
1986	Imports	51.9	43.9	49.5	38.2	54.9	36.8	36.0	36.0	37.3	31.7	55.6	31.2	503.1
	Exports	1.3	1.5	1.2	1.0	2.4	.9	.8	1.8	1.7	.6	.9	.8	14.9
1987 ¹	Imports	34.4	38.7	55.8	38.9	60.2	69.3	37.0	45.0	28.6	35.9	40.8	31.1	515.6
	Exports	.8	1.9	2.4	2.8	.8	1.1	.6	.5	.8	.7	2.3	3.2	17.9
1988 ¹	Imports	49.4	38.0	39.0	33.7	25.9	25.1	22.3	27.7	25.7	44.2	39.2	20.2	390.4
	Exports	4.9	2.0	3.8	5.7	7.7	9.5	3.5	4.4	14.3	2.3	4.0	4.5	66.5
1990 ¹	Imports	32.7	24.8	18.7	20.9	24.1	25.9	20.9	24.4					
	Exports	6.2	4.8	5.9	13.5	4.3	6.6	21.4	15.8					

¹ Preliminary. Source: U.S. Dept. of Commerce.

Refined Copper Stocks in the U.S.A. In Thousands of Short Tons (Recoverable Copper Content)

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1975	194.9	242.7	259.2	297.8	320.6	334.6	338.2	349.5	341.8	312.3	314.9	324.6
1976	360.7	363.4	370.9	347.8	343.0	325.2	317.1	350.4	355.8	356.1	372.8	416.5
1977	473.8	469.3	487.0	472.3	442.1	447.6	435.0	408.9	370.6	409.4	418.0	456.9
1978	471.1	488.7	491.6	470.2	480.5	465.5	464.0	430.9	418.0	405.9	416.4	408.9
1979	367.0	318.4	287.5	262.1	237.4	197.8	176.0	174.6	158.0	154.6	148.6	167.3
1980	186.3	203.5	228.2	237.1	269.1	277.3	295.7	310.6	301.0	274.6	265.0	246.0
1981	253.0	261.6	249.4	236.8	245.5	243.4	264.7	276.9	276.0	275.5	281.6	301.2
1982	338.6	351.9	375.9	387.3	409.8	422.5	448.1	463.7	449.9	436.2	438.2	470.8
1983	484.5	489.6	501.6	508.9	524.1	519.4	498.7	509.0	522.7	509.1	514.2	505.2
1984	475.3	497.8	499.6	483.3	478.3	463.4	483.2	493.4	490.7	467.1	475.2	457.3
1985	469.7	452.9	380.9	368.2	358.4	363.2	344.1	331.4	310.9	275.7	257.3	264.1
1986	270.7	271.0	261.6	242.0	231.1	201.4	188.0	209.6	214.4	188.1	189.0	211.3
1987	238.4	211.5	206.8	170.1	175.7	161.6	136.4	141.0	140.4	151.3	121.1	86.7
1988	81.4	79.8	81.6	89.0	83.1	75.7	42.0	48.8	52.5	42.9	40.6	39.8
1989 ¹	56.3	67.5	56.3	60.6	54.3	54.4	49.1	61.8	66.1	42.3	48.1	48.2
1990 ¹	72.7											

¹ Preliminary. Source: American Bureau of Metal Statistics, Inc.

T.145

Refined Copper Stocks Outside the U.S.A. In Thousands of Short Tons (Recoverable Copper Content)

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1975	591.2	628.8	624.5	655.8	723.1	766.0	784.7	861.5	933.4	1,007	1,072	1,108
1976	1,135	1,150	1,149	1,086	1,048	1,045	1,040	1,080	1,112	1,102	1,102	1,141
1977	1,117	1,158	1,200	1,166	1,183	1,185	1,195	1,210	1,229	1,247	1,240	1,225
1978	1,201	1,231	1,139	1,139	1,104	1,099	1,052	1,059	1,001	960.2	962.0	963.1
1979	942.2	878.2	862.4	765.1	758.8	756.7	727.2	687.1	696.6	648.2	635.4	641.3
1980	619.5	598.3	560.9	534.6	516.5	525.9	531.2	530.9	553.2	527.9	489.1	472.6
1981	476.2	485.2	471.0	463.0	458.8	449.8	446.0	454.9	454.7	433.4	419.4	403.0
1982	432.5	446.3	448.4	459.6	452.0	458.7	479.3	492.0	503.6	522.7	575.1	642.9
1983	699.9	760.8	766.4	759.1	795.5	780.0	722.2	683.0	757.4	767.2	765.2	810.4
1984	832.8	817.5	730.0	653.0	618.5	519.3	551.9	526.5	516.0	493.9	483.9	430.0
1985	425.0	420.7	385.7	361.9	364.6	380.4	368.8	464.0	546.7	558.4	533.6	486.6
1986	502.8	501.5	451.8	435.7	422.6	418.7	396.8	430.4	455.1	455.4	458.5	464.8
1987	473.7	467.5	410.5	397.5	387.4	348.5	337.8	336.8	341.1	314.7	254.9	269.6
1988	260.9	292.1	301.1	290.2	277.4	317.9	329.9	374.7	348.7	310.9	282.8	272.2
1989 ¹	337.5	337.1	352.2	365.1	421.1	394.8	382.7	391.8	355.1	390.5	395.3	405.6

¹ Preliminary. Source: American Bureau of Metal Statistics, Inc.

T.150

COPPER

Refined Copper Production Outside the U.S.A. In Thousands of Short Tons (Recoverable Copper Content)

Year	Refined													Crude	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Pri- mary	Sec- ondary
1980	384.2	382.8	408.4	398.3	418.7	396.8	392.2	402.9	386.1	394.4	371.8	389.9	4,727	—4,968—	
1981	359.7	347.9	393.6	390.0	388.0	391.4	377.0	377.7	378.8	379.9	366.9	393.8	4,545	—4,891—	
1982	398.2	381.0	442.6	391.8	365.2	403.9	368.4	365.8	386.1	405.8	411.8	372.6	4,693	—5,065—	
1983	386.8	366.3	411.8	400.0	401.2	418.0	381.9	404.3	395.9	404.5	393.1	409.5	4,773	—5,201—	
1984	380.3	376.9	412.4	375.1	374.1	382.5	357.4	381.5	373.8	405.2	380.8	358.7	4,559	—5,114—	
1985	371.6	338.8	388.5	376.1	377.4	351.4	384.2	385.6	380.4	387.6	385.5	394.9	4,522	—5,217—	
1986	366.5	351.5	401.7	409.7	373.1	361.2	361.7	374.8	400.3	407.4	396.4	403.6	4,608	—5,132—	
1987	385.8	375.4	410.6	412.2	399.9	403.6	393.3	370.6	391.2	402.7	402.5	407.5	4,755	—5,233—	
1988	397.7	387.8	434.2	370.6	389.4	391.5	366.6	386.9	365.9	412.8	417.0	414.9	4,735	—5,210—	
1989 ¹	401.0	375.6	414.6	405.3	420.7	404.9	412.4	420.2	423.4	433.8	426.3				

¹ Preliminary. Source: American Bureau of Metal Statistics, Inc.

T.148

Refined Copper Production in the U.S.A. In Thousands of Short Tons (Recoverable Copper Content)

Year	Refined													Crude	
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Pri- mary	Sec- ondary
1980	161.0	149.5	162.3	170.4	158.7	167.2	52.4	28.7	27.3	61.0	85.8	136.9	1,361	—1,205—	
1981	133.5	116.3	152.2	155.8	135.0	158.3	131.7	124.0	140.5	127.3	124.9	147.9	1,647	—1,429—	
1982	117.5	123.4	121.5	116.4	107.5	108.6	81.8	77.6	80.6	80.1	92.1	90.8	1,198	—1,026—	
1983	97.3	100.6	131.9	125.5	112.2	114.5	73.1	90.6	91.2	110.4	89.1	100.2	1,237	—1,077—	
1984	98.8	100.7	117.1	120.5	127.9	125.6	123.0	126.1	101.8	119.5	95.4	101.4	1,358	—1,270—	
1985	113.5	101.2	118.8	122.4	124.1	100.8	99.9	96.8	93.0	112.9	119.7	106.7	1,310	—1,387—	
1986	109.5	98.3	103.5	115.0	122.4	112.1	109.3	108.9	106.7	114.4	116.6	138.1	1,355	—1,323—	
1987	118.0	110.5	105.4	127.7	118.5	95.5	107.7	106.4	121.8	131.3	123.3	127.7	1,394	—1,308—	
1988	124.5	127.2	145.6	122.5	133.7	116.7	112.7	146.0	133.8	121.1	137.7	131.8	1,553	—1,527—	
1989 ¹	129.5	128.1	137.2	118.3	132.2	142.6	121.3	150.8	116.5	137.0	127.4	130.7	1,572	—1,551—	

¹ Preliminary. Source: American Bureau of Metal Statistics, Inc.

T.149

Refined Copper Deliveries to Fabricators in the U.S.A.

In Ths. of Short Tons (Recoverable Copper Content)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	173.5	153.7	193.5	167.8	176.3	175.0	98.7	85.0	83.7	106.6	128.7	154.5	1,697
1981	153.0	154.2	196.5	165.1	169.1	158.8	150.6	152.7	157.5	159.5	131.6	131.2	1,880
1982	134.6	112.2	131.5	114.2	121.0	111.4	106.2	110.6	131.8	113.3	78.4	119.2	1,384
1983	126.2	141.1	185.3	156.0	165.9	164.4	91.0	105.2	141.2	137.1	110.2	145.3	1,669
1984	118.3	146.1	185.7	184.4	190.7	163.8	150.7	159.3	166.0	167.1	149.5	124.2	1,906
1985	170.2	188.7	159.8	153.0	144.3	135.2	122.3	130.0	153.3	151.5	137.9	120.7	1,767
1986	123.8	120.1	150.5	155.3	164.5	131.5	113.1	127.1	160.7	141.1	114.7	128.4	1,631
1987	160.2	138.7	166.9	152.3	165.6	152.3	131.6	127.2	141.4	188.3	192.7	168.2	1,885
1988	152.0	151.5	162.5	149.6	150.1	161.2	116.5	164.7	169.6	148.2	159.1	139.0	1,824
1989 ¹	127.8	147.7	148.4	141.1	153.2	168.4	131.4	173.2	161.9	156.8	148.9	126.1	1,785

¹ Preliminary. Source: American Bureau of Metal Statistics, Inc.

T.147

Refined Copper Deliveries to Fabricators Outside the U.S.A.

In Ths. of Short Tons (Recoverable Copper Content)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	386.2	403.2	400.0	407.6	396.9	376.6	357.3	346.7	389.5	406.5	374.4	375.8	4,653
1981	336.8	353.7	383.2	385.4	380.8	382.7	346.0	355.9	393.4	369.5	373.9	364.5	4,426
1982	373.4	380.1	423.6	387.4	348.3	365.4	341.4	342.8	354.9	343.5	331.3	301.6	4,294
1983	303.2	322.9	371.1	325.7	392.2	454.4	407.4	308.3	360.7	389.4	350.2	397.4	4,383
1984	375.0	448.8	477.8	377.1	453.1	358.8	372.5	371.5	382.7	394.6	420.7	360.6	4,793
1985	356.6	372.1	408.2	369.8	379.8	395.9	300.4	319.9	384.6	422.0	419.6	375.9	4,505
1986	364.5	396.9	403.4	403.2	375.6	387.9	331.0	334.1	376.2	384.9	380.9	380.8	4,519
1987	386.0	413.0	413.9	406.8	426.7	401.8	384.1	359.4	416.4	468.8	377.1	396.8	4,851
1988	359.6	375.2	448.7	385.1	366.8	403.2	340.9	405.9	401.8	437.4	455.6	356.6	4,737
1989 ¹	427.8	373.0	410.9	362.1	455.1	414.8	383.3	440.2	373.9	413.5	389.3		

¹ Preliminary. Source: American Bureau of Metal Statistics, Inc.

T.146

Corn

World corn production in 1989/90 was forecast by USDA at 460 million tonnes, 15 percent more than a year earlier. The U.S. crop rebounded from the previous season's drought-reduced output. The U.S. was the largest producer with 42 percent of worldwide output. China was second with a crop of 76 million tonnes, or 16 percent of the world total. Production rose in Argentina, but fell in South Africa and Thailand. Soviet coarse grain production, which includes corn and barley, was projected to increase by 8 percent.

Global corn consumption was estimated at 476 million tonnes, up 4 percent from the previous year. The major corn users were the U.S., China, and the Soviet Union.

World trade in corn was estimated at 75.2 million tonnes, up from 73 million. With a larger crop, U.S. exports were projected to increase. Argentina's exports were forecast at 2.5 million tonnes, up from 1.6 million the previous season. Thai exports were projected to fall to 850,000 tonnes from 1.6 million. South Africa was expected to ship 1 million tonnes, down from 4.4 million. The Soviet Union was the major importer, followed by Japan. Several developing countries, including Mexico and South Korea, were expected to import more corn in 1989/90.

Soviet grain production is quite variable, due to climatic conditions and the wide area in which grains are planted. Soviet corn output in 1989/90 was projected at 16 million tonnes, about the same as the previous year, and imports were projected to fall slightly to 18.3 million tonnes. The Soviets continued to import large quantities of corn in an effort to increase the amount of meat and dairy products in the diet.

The increase in consumption helped reduce world ending stocks to 72 million tonnes, 18 percent less than the previous season. The U.S. share of world stocks was 52 percent, down from 56 percent.

The U.S. corn crop in 1989 was 7.53 billion bushels, up 54 percent from 1988's drought-damaged crop. Harvested area was 64.8 million acres, about 11 percent above 1988. While there were concerns early in the season about lingering dryness, timely rains and moderate temperatures allowed the crop to develop normally. The national average yield was 116 bushels per acre, compared to 85 bushels in 1988 and a record 119.8 bushels in 1987.

The 1989 growing season was characterized by wet conditions in the eastern Corn Belt states of Ohio and Indiana, while the western states of Iowa

and Nebraska remained dry from the previous season. Initially, it appeared that rain in the eastern Belt would delay corn planting enough that more soybeans would be seeded. In the western Belt, planting went well, and needed rains arrived during July and August. The harvest went smoothly, as conditions again turned dry.

U.S. carry-in stocks of 1.93 billion bushels in 1989/90 were substantially less than the previous year's 4.26 billion, due to the effects of the 1988 drought. The total supply of corn in 1989/90 was put at 9.46 billion bushels, 3 percent more than in 1988/89. With a large availability of corn and lower prices, use was expected to increase. Total consumption of corn, including exports, was put at 7.98 billion bushels, or 10 percent more than the previous year. The USDA estimated that corn used for feed would total 4.4 billion bushels, up 11 percent. While cattle numbers were expected to decline, the poultry industry continued to expand, with rising broiler and turkey production.

Corn use for food, seed, and industrial purposes was expected to increase to 1.31 billion bushels in 1989/90 from 1.25 billion. Use in such diverse products as ethanol and sweeteners continued to expand slowly.

U.S. corn exports were projected at 2.28 billion bushels, 12 percent more than a year earlier. The major buyers were the USSR, Japan and Taiwan.

Carry-out stocks were forecast at 1.48 billion bushels, or 23 percent less than the previous season. Stocks of corn in the Farmer Owned Reserve were projected to fall to 400 million bushels from 725 million the previous season. Commodity Credit Corporation stocks were projected to rise slightly to 400 million bushels. Free stocks of corn were estimated at 680 million bushels, compared to 842 million in 1988/89.

U.S. Government Program

For 1990, the acreage reduction requirement was set at 10 percent, the same as a year earlier. The price support loan rate was \$1.57 per bushels, down from \$1.65 a year earlier. The target price for corn was \$2.75 per bushels, compared to \$2.84 in 1989.

Futures Markets

Corn futures and options are traded on the Chicago Board of Trade. Futures are also traded on the MidAmerica Commodity Exchange.

World Production of Corn or Maize In Millions of Metric Tons

Crop Year	Arg- Argentina	Brazil	Bul- garia	China	France	Hungary	India	Indo- nesia	Italy	Mexico	Romania	South Africa	Thai- land	United States	USSR	Yugo- slavia	World Total
1986-7	9.3	26.5	2.9	70.9	11.5	7.0	7.5	5.0	6.4	10.0	15.0	7.2	4.3	209.6	12.5	12.5	477.9
1987-8	9.0	24.7	1.5	79.2	12.3	7.0	5.5	4.8	5.6	9.9	10.5	7.1	2.7	179.4	14.8	8.8	448.8
1988-9 ¹	4.8	26.0		77.4	12.0		7.5	5.2	6.0	10.1		11.7	4.2	125.0	16.0		399.1
1989-90 ²	6.5	25.5		76.0				5.2		10.1		8.0	3.8	192.8	16.0		464.6

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

CORN

World Coarse Grains Supply & Demand In Millions of Metric Tons/Hectares

Crop Year	Area Harvested	Yield	Production	World Trade ¹	Utilization Total ²	Ending Stks ³	Stocks as % of Util
1982/83	339.2	2.31	784.3	90.0	753.3	181.9	24.1
1983/84	335.0	2.05	688.1	93.4	759.2	110.7	14.6
1984/85	334.5	2.44	815.7	100.4	782.6	143.9	18.4
1985/86	341.3	2.47	843.3	83.2	779.0	208.1	26.7
1986/87	337.3	2.48	835.4	84.1	809.5	234.0	28.9
1987/88 ⁴	323.1	2.45	792.7	83.6	813.4	213.4	26.2
1988/89 ⁴	326.3	2.23	728.9	93.9	796.9	145.3	18.2
1989/90 ⁵	325.7	2.47	804.6	98.6	826.6	123.4	14.9

Note: "Stocks as percent of utilization" represent the ratio of marketing year ending stocks to total utilization. ¹ Trade data as expressed in this table exclude intra-EC trade. The trade year is October/September. ² For countries for which stocks data are not available (excluding the USSR) utilization estimates represent "apparent" utilization, i.e., include annual stock level adjustments. ³ Stocks data are based on an aggregate of differing local marketing years and should not be construed as representing world stock levels at a fixed point in time. Stocks data are not available for all countries and exclude those such as the People's Republic of China and parts of Eastern Europe. World Stock Levels have been adjusted for estimated year-to-year changes in USSR grain stocks, but do not purport to include the absolute level of USSR grain stocks. ⁴ Preliminary. ⁵ Projection. Sources: Prepared or estimated on the basis of official statistics of foreign governments, other foreign source materials, reports of U.S. Agricultural Attaches and Foreign Service Officers, results of Office Research and Related Information. 150a

Acreage and Supply of Corn in the United States In Millions of Bushels

Year Beginning Sept. ¹	Planted All Purposes	Harvested For			Yield, Per Acre-Bus.	Carry-over, Sept. 1				Grain Production	Im-ports ²	Total (All Supply Grain)
		For Grain	For Silage	For Forage		On Farms ⁵	Off Farms ⁵	Others ⁵	Total			
		In Millions of Acres										
1982-3	81.9	72.7	8.3	.3	113.2	1,243.3	—	930.7	2,537	8,235	.7	10,772
1983-4	60.2	51.5	7.8	.3	81.1	1,510.4	—	1,609.5	3,523	4,175	2.7	7,701
1984-5	80.5	71.9	7.5	N.A.	106.7	347.9	—	375.4	1,006	7,674	3.5	8,684
1985-6	83.4	75.2	7.2		118.0	678.9	—	701.8	1,648	8,877	10.6	10,536
1986-7	76.7	69.2	6.3		119.3	2,049.4	—	1,990.1	4,040	8,250	2.1	12,292
1987-8	65.7	59.2	5.9		119.5	2,284.5	—	2,597.2	4,882	7,072	4.0	11,958
1988-9 ¹	67.6	58.2			84.6	2,002.8	—	2,256.8	4,259	4,921	5.0	9,185
1989-90 ⁴	72.3	65.1			116.6	967.5	—	962.9	1,930	7,590	3.0	9,523

¹ Preliminary. ² Includes grain equivalent of cornmeal & flour. ³ Interior mills & elevators and terminal mkts. ⁴ Estimate. ⁵ Data prior to 1986-7 are as of Oct 1. Source: Economic Research Service, U.S.D.A. T.152

U.S. Corn Supply and Disappearance In Millions of Bushels

Year & Periods Begin. Sept. 1	Supply				Disappearance						Ending Stocks		
	Begin- ning Stocks	Produc- tion	Im- ports	Total Supply	Food, Alco- hol & Industrial	Seed	Feed & Res- idual	Total	Ex- ports	Total Disap- pearance	Gov't. Owned ¹	Pri- vately Owned ²	Total
1985-6	1,648	8,877	10.6	10,536	1,140	19.5	4,095	5,255	1,241	6,496	545.7	3,494	4,040
Sep.-Nov.	1,648	8,877	1.0	10,526	278.0	—	1,216	1,494	417.7	1,911	388.6	8,226	8,615
Dec.-Feb.	8,615	—	1.3	8,616	264.0	—	1,300	1,564	465.3	2,029	509.4	6,078	6,587
Mar.-May	6,587	—	2.3	6,589	293.0	16.1	1,086	1,395	204.4	1,599	550.9	4,439	4,990
June-Aug.	4,990	—	6.0	4,996	305.0	3.4	494.3	802.7	153.8	956.5	545.7	3,494	4,040
1986-7	4,040	8,250	2.1	12,292	1,175	16.7	4,714	5,905	1,504	7,410	1,443	3,439	4,882
Sep.-Nov.	4,040	8,250	.8	12,290	280.0	—	1,385	1,664	321.1	1,985	968.2	9,337	10,306
Dec.-Feb.	10,306	—	.3	10,306	270.0	—	1,472	1,742	315.4	2,058	1,362	6,886	8,248
Mar.-May	8,248	—	.5	8,249	310.0	16.4	1,090	1,416	500.2	1,917	1,492	4,841	6,332
June-Aug.	6,332	—	.5	6,333	315.0	.3	768.0	1,083	367.7	1,451	1,443	3,439	4,882
1987-8 ³	4,882	7,072	4.0	11,958	1,212	17.2	4,735	5,964	1,735	7,690	835.0	3,424	4,259
Sep.-Nov.	4,882	7,072	.6	11,954	292.0	—	1,493	1,785	398.0	2,183	1,683	8,088	9,771
Dec.-Feb.	9,771	—	.9	9,772	282.0	—	1,446	1,728	408.3	2,136	1,768	5,868	7,636
Mar.-May	7,636	—	1.6	7,637	315.0	16.7	956.2	1,288	513.8	1,802	1,305	4,531	5,836
June-Aug.	5,836	—	.9	5,836	323.0	.5	838.4	1,163	414.4	1,577	835.0	3,424	4,259
1988-9 ⁴	4,259	4,921	5.0	9,185	1,226	18.7	3,950	5,195	2,060	7,255	400.0	1,530	1,930
Sep.-Nov.	4,259	4,921	.7	9,181	294.0	—	1,334	1,628	481.9	2,109	611.0	6,461	7,072
Dec.-Feb.	7,072	—	1.5	7,073	284.0	—	1,077	1,361	508.3	1,869	465.0	4,739	5,204
Mar.-May	5,204	—	1.9	5,206	320.2	16.8	849.3	1,186	600.2	1,787	417.7	3,002	3,419
June-Aug.	3,410	—	.9	3,420	328.2	1.9	689.9	1,020	468.9	1,499	400.0	1,530	1,930
1989-90 ⁴	1,930	7,590	3.0	9,523	—1,275—	—	4,200	5,475	2,150	7,625	750.0	1,148	1,898

¹ Uncommitted inventory. ² Includes quantity under loan & farmer-owned reserve. ³ Preliminary. ⁴ Estimate. Source: Economic Research Service, U.S.D.A. T.154

Corn Production Estimates and Cash Prices in the U.S.

Crop Year	Corn for Grain Production Estimates						St. Louis No. 2 Yellow	Gulf Ports No. 2 Yel. (Export)	Los Angeles No. 2 Yel.	Season Farm Avg. Price ¹	K.C. White No. 2	Value of Production (Million Dollars)						
	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Final												
													In Thousands of Bushels					
													\$ per bushel					
1980-1	6,645,842	6,534,370	6,466,622	6,461,244	6,647,534	6,639,396	3.40	3.59	4.48	3.11	4.96	20,554						
1981-2	7,734,941	7,940,421	8,081,444	8,097,231	8,200,951	8,118,650	2.63	2.87	3.92	2.50	2.60	20,200						
1982-3	8,315,088	8,318,678	8,314,938	8,329,808	8,397,334	8,235,101	2.87	3.06	3.93	2.55	3.35	22,039						
1983-4	5,236,558	4,390,443	4,259,408	4,120,983	4,203,777	4,174,678	3.49	3.67	4.22	3.21	4.70	13,535						
1984-5	7,667,721	7,551,991	7,497,831	7,527,206	7,649,995	7,674,020	2.81	3.00	3.78	2.63	3.27	20,085						
1985-6	8,265,554	8,468,504	8,602,994	8,716,534	8,865,006	8,876,706	2.37	2.52	3.43	2.23	2.49	19,522						
1986-7	8,316,156	8,268,141	8,220,201	8,222,576	8,252,834	8,249,864	1.68	1.83	2.69	1.50	2.17	12,541						
1987-8	7,230,950	7,140,505	7,139,255	7,166,020	—	7,064,143	2.19	2.38	—	1.94	—	21,130						
1988-9 ²	4,479,385	4,462,475	4,552,735	4,671,235	—	4,921,191	2.73	2.93	—	2.54	—	12,499						
1989-90 ²	7,348,155	7,321,005	7,448,875	7,589,715	—	—	—	—	—	2.20	—	16,698						

¹ Includes an allowance for unredeemed loan & purchase agreement deliveries valued at the average loan rate. ² Preliminary.
Source: Economics Research Service; Crop Reporting Board, U.S.D.A.

T.153

Production of Corn (For Grain) in the United States, by States In Millions of Bushels

Year	Illinois	Indiana	Iowa	Kansas	Kentucky	Michigan	Minn.	Missouri	Nebraska	No. Car.	Ohio	Pa.	So. Dak.	Wisconsin	Texas
1980	1,066	602.9	1,463	110.9	103.6	247.0	610.1	109.7	603.5	103.8	440.7	96.0	121.9	348.4	117.0
1981	1,454	654.0	1,759	148.1	149.0	273.6	744.7	213.4	791.2	140.9	360.0	134.4	180.6	378.0	127.5
1982	1,499	790.0	1,578	139.1	154.5	293.2	734.5	199.0	748.0	155.4	456.0	126.1	193.7	361.8	119.7
1983	624.1	340.9	743.9	85.6	46.1	165.6	367.1	72.9	470.5	76.8	224.0	72.5	104.4	223.1	104.8
1984	1,247	705.5	1,445	119.4	146.0	220.1	689.1	154.4	806.2	145.8	460.2	148.5	186.3	344.5	144.2
1985	1,535	756.5	1,707	152.1	159.1	286.7	724.5	272.8	953.6	128.4	511.8	151.8	252.0	358.5	156.5
1986	1,404	695.4	1,627	181.6	139.8	257.3	707.6	280.7	896.0	93.8	476.2	127.7	233.7	365.8	149.0
1987	1,201	631.8	1,307	141.6	118.6	185.3	635.0	243.0	812.2	69.0	362.4	95.4	228.3	330.4	133.8
1988	700.8	415.0	898.8	143.8	80.3	112.0	347.8	153.5	818.4	78.1	255.0	59.2	132.0	130.7	129.6
1989 ¹	1,327	690.1	1,476	158.6	135.7	210.6	700.0	222.8	849.6	91.1	342.2	96.3	208.8	310.8	152.6

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.157

Distribution of Corn in the United States In Millions of Bushels

Year Beg. Sept.	Wet-Milled Products					Dry-Milled Products			Total Ship- ments	Seed	Live- stock Feed ³	Exports (Incl. Grain Equiv. of Pdt's.)	Total Utiliza- tion	Domestic Disappear- ance
	Glucose & Dextrose	Starch	Fuel	Alcohol	Beverage ²	Fuel	Alcohol	Alkaline Cooked Pdt's.						
1980-1	165	183	120	20	20	15	20	160	718	20.2	4,157	2,408	7,283	4,875
1981-2	185	183	130	55	30	25	10	162	797	19.4	4,169	2,010	6,975	4,966
1982-3	215	188	127	100	30	40	10	170	895	14.5	4,521	1,834	7,249	5,416
1983-4	256	189	147	120	30	40	10	164	975	19.1	3,818	1,902	6,694	4,793
1984-5	310	187	143	140	30	90	10	160	1,091	21.2	4,079	1,865	7,036	5,170
1985-6	328	188	152	155	30	115	10	161	1,160	19.5	4,095	1,241	6,496	5,255
1986-7	339	185	155	—	200	125	10	161	1,191	16.7	4,714	1,504	7,410	5,905
1987-8	359	187	167	—	200	—	136	163	1,229	17.2	4,735	1,735	7,699	5,964
1988-9 ¹	362	196	164	—	210	—	133	161	1,245	19.0	3,950	2,060	7,255	5,195
1989-90 ⁴	380	200	165	—	215	—	135	161	1,275	19.0	4,200	2,150	7,625	5,475

¹ Preliminary. ² Also includes nonfuel industrial alcohol. ³ Feed & waste (residual, mostly feed). ⁴ Forecast.
Source: Economics Research Service, U.S.D.A.

T.155

U.S. Exports¹ of Corn (Including Seed), By Country of Destination In Thousands of Metric Tons

Yr. Begin Sept.	Algeria	Brazil	Bulgaria	China	Egypt	German Dr	Israel	Japan	Mexico	Rep. of Korea	Saudi Arabia	Spain	Taiwan	USSR	Total Exports
1984-5	500	209	69	0	1,352	468	264	11,095	1,267	1,602	307	2,353	3,134	15,750	45,960
1985-6	311	1,062	370	0	1,390	320	270	8,535	1,446	1,223	206	1,759	2,591	6,808	29,388
1986-7	971	1,162	279	1,088	2,247	542	408	12,414	3,028	3,915	307	411	3,176	4,102	39,062
1987-8	1,029	0	756	279	822	447	418	15,830	2,772	4,664	611	1,627	4,004	5,184	43,846
1988-9	1,001	20	1,180	0	1,240	617	282	13,893	2,804	4,695	598	1,553	4,002	16,674	52,577

¹ Exports of grain only. Does not include corn exported under the food for relief or charity program. Source: U.S. Bureau of Census.

T.165

CORN



Average Cash Price of Corn, No. 2 Yellow (1.5 Days) at Chicago In Cents Per Bushel

Crop Yr	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average ¹
1981-2	272	261	260	252	263	263	267	269	273	272	261	236	263
1982-3	217	207	238	244	254	274	298	312	311	328	333	360	298
1983-4	352	347	351	338	330	329	352	361	361	362	345	323	346
1984-5	295	281	279	272	279	279	284	290	285	283	276	250	279
1985-6	231	226	246	250	251	249	245	246	255	252	198	168	235
1986-7	149	151	168	166	157	150	160	169	189	188	168	153	164
1987-8	162	173	186	189	195	201	203	203	209	274	293	279	214
1988-9 ²	277	279	263	268	274	272	278	272	278	266	250	230	267
1989-90 ²	237	236	237	234									

¹ Weighted average by carlot sales. ² Preliminary. Source: Economic Research Service, U.S.D.A.

T.161

Average Cash Price of Corn, No. 2 Yellow at Omaha In Dollars Per Bushel

Crop Yr	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
1981-82	2.51	2.44	2.39	2.37	2.47	2.45	2.48	2.61	2.65	2.65	2.54	2.23	2.48
1982-83	2.23	2.12	2.35	2.37	2.42	2.62	2.82	3.09	3.10	3.11	3.18	3.39	2.73
1983-84	3.32	3.23	3.24	3.17	3.11	3.03	3.25	3.33	3.35	3.37	3.22	3.11	3.23
1984-85	2.94	2.71	2.61	2.55	2.60	2.61	2.68	2.73	2.68	2.70	2.61	2.39	2.65
1985-86	2.35	2.26	2.28	2.36	2.33	2.31	2.31	2.34	2.43	2.42	2.01	1.61	2.25
1986-87	1.41	1.40	1.55	1.54	1.44	1.39	1.47	1.57	1.76	1.77	1.59	1.47	1.53
1987-88	1.51	1.57	1.68	1.75	1.79	1.84	1.86	1.87	1.96	2.64	2.72	2.55	1.98
1988-89	2.57	2.61	2.47	2.54	2.74	2.54	2.58	2.38	2.56	2.48	2.36	2.22	2.49
1989-90	2.22	2.26	2.28	2.28									

Source: Economic Research Service, U.S.D.A.

T.161a

CORN

Weekly Outstanding Export Sales & Cumulative Exports—U.S. Corn In Thousand Metric Tons

1989/90			1988/89			1987/88		
Marketing Year 1989/90 Week Ending	Outst. Sales	Cumul. Exports	Marketing Year 1988/89 Week Ending	Outst. Sales	Cumul. Exports	Marketing Year 1987/88 Week Ending	Outst. Sales	Cumul. Exports
Sept. 7,'89	6,760	592	Sept. 1,'88	10,092	59	Sept. 3,'87	6,462	212
14	6,595	1,128	8	11,310	568	10	6,874	818
21	7,187	1,786	15	11,637	1,534	17	6,633	1,682
28	8,004	2,489	22	11,531	2,400	24	6,620	2,434
Oct. 5	10,863	3,339	29	12,089	3,374	Oct. 1	6,456	3,264
12	11,960	3,993	Oct. 6	11,265	4,387	8	6,074	4,104
19	15,215	4,956	13	11,046	5,346	15	5,635	5,106
26	16,223	5,797	20	10,882	6,553	22	7,118	5,994
Nov. 2	15,469	7,273	27	10,503	7,710	29	7,966	6,529
9	15,165	8,697	Nov. 3	9,921	8,709	Nov. 5	8,030	7,358
16	14,916	10,113	10	9,747	9,595	12	8,032	8,170
23	13,846	11,941	17	10,919	10,663	19	7,785	8,785
30	14,955	14,335	24	10,101	11,734	26	8,146	9,585
Dec. 7	14,731	15,796	Dec. 1	9,598	12,822	Dec. 3	7,554	10,702
14	13,715	17,724	8	8,919	13,830	10	7,065	11,630
21	13,045	19,079	15	8,581	14,728	17	7,344	12,443
28	12,745	19,906	22	10,062	15,669	24	7,195	13,215
Jan. 4,'90	11,973	21,216	29	11,806	16,323	31	6,876	13,879
11	11,214	22,773	Jan. 5,'89	11,889	17,013	Jan. 7,'88	6,644	14,757
18	10,810	24,317	12	12,217	17,988	14	6,512	15,482
25			19	11,790	19,112	21	7,220	16,471
Feb. 1			26	10,914	21,735	28	8,756	17,134
8			Feb. 2	10,125	21,735	Feb. 4	9,109	17,684
15			9	9,523	22,840	11	9,171	18,400
22			16	9,409	23,715	18	8,963	18,997
			23	8,931	24,851	25	9,913	20,031
			Mar. 2	8,559	25,947	Mar. 3	9,759	20,940
			9	8,109	27,034	10	10,213	21,846
			16	7,520	28,290	17	10,629	22,650
			23	7,442	29,052	24	10,740	23,657
			30	8,693	30,199	31	10,908	24,387
			Apr 6	9,949	31,226	Apr. 7	10,517	25,257
			13	9,535	32,329	14	9,856	26,555
			20	8,990	33,327	21	9,132	27,655
			27	9,165	34,562	28	8,776	28,779
			May 4	9,897	35,788	May 5	8,505	29,570
			11	9,328	36,697	12	7,856	30,990
			18	9,249	37,874	19	7,439	31,818
			25	8,484	39,295	26	7,160	32,694
			June 1	8,267	40,350	June 2	6,694	33,486
			8	8,001	41,848	9	6,517	34,487
			15	7,420	43,210	16	6,492	35,432
			22	6,653	44,500	23	6,589	36,209
			29	5,911	45,874	30	5,710	36,793
			July 6	5,352	46,842	July 7	5,977	37,309
			13	4,867	47,847	14	5,949	38,093
			20	4,459	48,878	21	5,326	39,030
			27	4,172	49,408	28	4,765	39,923
			Aug. 3	3,852	49,858	Aug. 4	4,361	40,604
			10	3,247	50,724	11	3,461	41,453
			17	2,723	51,401	18	2,794	42,276
			24	2,416	51,837	25	2,146	43,072
			31	6,756	—			

Source: U.S.D.A. Export Sales Report (U.S.D.A.)

T.161b

CORN



High, Low & Closing Prices of May Corn Futures at Chicago In Cents per Bushel

Year of Delivery	Year Prior to Delivery												Delivery Year					Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May			
1986 High	282¾	284	279½	274½	264¾	242	243½	247¾	250¾	256½	255¼	245¾	235¾	241	260½	291¼		
Low	274¾	275½	264½	262½	238½	231	231½	238¼	241	242½	243	226¾	222½	224¾	233	222½		
Close	282¾	279	267½	263¾	240½	235	240¾	246½	243½	252¼	244¾	227	234¾	238¼	257	—		
1987 High	225½	223¼	226½	212½	198¼	192½	193½	192½	192	184½	168¼	165¼	166	179	195	226½		
Low	214	207	207½	195¾	185½	182¾	180	180¼	183¾	167	160¼	149¼	152¾	157¼	178¼	149¼		
Close	219	223¼	208¼	196	186¾	183	191½	187¼	184	167½	163	153¾	162½	179	181½	—		
1988 High	187	199	221	225½	202¼	188½	195¾	203	204¼	202	208	210¼	212	213	219	225½		
Low	175½	182½	195¼	198½	184¼	177½	180	189	185¼	189½	190¼	201	202	198½	195½	174		
Close	184¾	197½	203	202¾	188¾	181¾	193¼	190	202	191¼	202½	209¼	209¾	202¼	216	—		
1989 High	235	240½	259	366	369	319¾	312½	303¼	294¾	291¾	298	281¾	284½	280¾	281¾	369		
Low	223½	235¼	234¾	253	281	285	290	279¼	267½	268½	270	269	264½	258½	271½	207½		
Close	232¼	238½	258½	345¼	291¼	302¼	293¼	288½	274½	289¾	281½	278½	268½	269¼	274¾	—		
1990 High	286	283	273½	268¾	285¼	253½	252¾	257	249½	247¼	250¾							
Low	262	260	245½	243½	230	231	239	241½	241¼	239½	241¾							
Close	267	267¾	246	261¾	232¼	249½	247	245¾	244½	245½	243¾							

Source: Chicago Board of Trade

T.162

Corn (Shelled & Ear) Stocks in the United States In Millions of Bushels

Year	On Farms				Off Farms				Total Stocks			
	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1
1985	N.A.	2,008	N.A.	N.A.	N.A.	828	N.A.	N.A.	N.A.	2,836	1,648	8,615
1986	N.A.	3,143	2,049	6,796	N.A.	1,847	1,990	3,510	6,587	4,990	4,040	10,305
1987	5,024	3,492	2,285	6,100	3,224	2,840	2,597	3,668	8,248	6,332	4,882	9,768
1988 ¹	4,421	3,241	2,003	4,280	3,215	2,598	2,256	2,791	7,636	5,839	4,259	7,072
1989 ¹	3,021	2,022	967.5	4,699	2,183	1,397	962.9	2,380	5,204	3,419	1,930	7,079

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.156

Volume of Trading of Corn Futures at Chicago In Millions of Bushels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	4,848	4,495	5,036	5,222	3,867	4,785	5,459	5,019	3,626	3,127	3,913	3,978	53,375
1982	2,802	3,390	3,634	3,355	2,754	3,538	3,122	3,552	3,127	3,239	4,634	2,594	39,741
1983	3,638	3,114	5,355	4,440	3,943	4,511	5,627	7,431	5,882	5,180	5,734	3,518	59,623
1984	3,518	3,866	4,248	4,407	4,259	4,111	4,868	3,975	3,289	2,883	3,619	2,439	45,543
1985	2,406	2,369	2,746	2,608	2,346	2,494	3,231	2,743	2,629	2,597	3,545	2,248	31,964
1986	2,629	2,153	2,203	2,840	3,029	2,390	2,605	2,217	2,486	3,103	2,591	2,555	30,801
1987	2,343	2,901	3,088	3,646	3,579	3,984	2,978	2,498	2,620	3,380	2,923	2,327	36,266
1988	3,040	3,333	3,212	3,478	4,235	7,898	6,818	5,352	4,353	4,661	5,597	3,549	55,528
1989 ¹	4,170	3,384	3,818	4,138	3,930	4,485	4,323	3,433	2,827	4,702	4,352	2,793	46,359

¹ Preliminary. Source: Chicago Board of Trade

T.164

Month-End Open Interest of Corn Futures at Chicago In Millions of Bushels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	1,216.5	1,107.5	1,002.4	846.5	737.5	572.6	568.8	637.8	637.7	724.7	674.6	630.7
1982	708.0	625.6	650.0	610.0	594.5	552.6	581.8	596.6	594.7	663.5	712.1	657.8
1983	776.9	778.5	872.5	832.4	760.0	727.2	792.5	1,127.1	1,134.4	1,163.4	1,138.0	1,062.1
1984	1,022.3	964.0	1,034.3	901.5	776.8	717.8	704.0	712.2	730.6	738.4	657.8	649.4
1985	659.2	588.2	629.0	587.6	507.9	499.2	603.1	661.4	605.7	698.0	714.4	622.1
1986	587.2	545.1	559.5	574.2	574.0	564.3	558.7	594.0	671.7	792.1	677.4	605.5
1987	673.9	705.5	719.0	690.1	628.6	593.7	586.2	568.8	629.4	679.7	672.9	638.3
1988	734.6	777.5	823.9	777.5	911.8	1,177.8	1,187.9	1,121.6	1,178.5	1,262.5	1,085.4	1,123.4
1989 ¹	1,029.7	926.4	993.5	846.3	799.0	739.4	740.0	700.9	719.1	983.9	892.0	834.6

Source: Chicago Board of Trade

T.163

Corn Price Support Data in the United States

Year Begin. Oct.1	National Avg. Loan Rate	Grain Reserve Loan Rate	Target Price	Placed Under Loan	% of Production	Acquired by CCC	Total Deliv- eries ²	Quan- tity Pl- edged ths. bu.	Face Amount ths. \$	Owned by CCC 9/30	Total Stocks (as of 8/31)	CCC Inventory — As of Dec. 31 —	
	c Bush.							Millions of Bushels				CCC Owned	Under CCC Loan
1981-2	240	255	240	1,978	24.1	172	45	13,463	34,297	302	2,537	248	1,234
1982-3	255	290	270	1,579	18.9	349	0	15,485	45,889	1,150	3,523	429	2,400
1983-4	265		286	162	3.9	9		369	1,058	201	1,006	1,230	1,450
1984-5	255		303	1,097	14.3	65		2,290	6,270	240	1,648	296	1,056
1985-6	255		303	3,165	35.7	580		56,868	156,478	546	4,040	477	2,811
1986-7	192		303	4,889	59.3	1,363		59,188	114,611	1,443	4,882	1,265	4,905
1987-8 ¹	182		303	4,200	59.5	900		290,323	563,745	1,500	4,259	1,843	4,436
1988-9 ¹	177		293								1,930		
1989-90 ¹	165		284								1,898		

¹ Preliminary. ² Includes "delivered to CCC" from original program and deliveries from resale program and over-deliveries as determined by weight of farm-stored grain when delivered to CCC. ³ Less than 500,000 bushels.

Source: Agricultural Stabilization and Conservation Service, U.S.D.A.

T.159

Corn Under Price Support through the End of the Month
(Cumulative Total from Current Season's Crop) In Millions of Bushels

Crop Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1981-2		13.5	81.9	418.7	1,049	1,642	1,826	1,903	1,940	1,951	1,962			
1982-3		15.5	76.2	334.5	870.2	1,369	1,505	1,551	1,561	1,567	1,572			
1983-4		.4	14.6	58.1	98.3	138.0	149.1	158.3	160.2	161.1	161.3			
1984-5		2.3	47.2	278.5	631.5	969.6	1,028	1,055	1,063	1,068	1,070			
1985-6	11.1	56.9	369.8	1,069	2,016	2,055	2,828	2,916	2,996	3,278	3,040			
1986-7	8.1	59.2	535.6	1,583	2,810	3,922	4,455	4,612	4,765	4,814	4,839	4,850		
1987-8	3.8	290.3	967.9	2,385	3,051	3,899	4,092	4,140	4,168	4,181	4,187			
1988-9	1.3	16.0	95.3	266.2	505.7	704.7	733.4	749.3	752.9	754.0	756.0	755.9		
1989-90	2.3	11.3												

Source: U.S. Department of Agriculture

T.158

Corn Oil

Supply & Distribution of Corn Oil In Millions of Pounds

Year Beginning Oct.	Supply				Food Uses				Disappearance				Total Domestic Disap- pearance	Total Exports & Ship- ments
	Pro- duc- tion	Imports	Stocks Oct. 1	Total Supply	Short- ening	Margar- ine	Salad & Cooking Oil	Other	Total Food Uses	Feeds & Loss	Other	Total Non-Food Uses		
1980-1	864	—	66	930		217	383		625				673	181
1981-2	873	—	76	949		217	357		593				692	202
1982-3	981	—	55	1,036		217	395		637				723	223
1983-4	1,054	—	90	1,144		196	458		693				762	311
1984-5	1,195	—	70	1,265		206	511		774				930	260
1985-6	1,253	—	75	1,328		200	524		837				863	344
1986-7	1,400	—	120	1,520		248	491		934				1,143	268
1987-8 ¹	1,435	—	109	1,544		212	555		946				1,065	368
1988-9 ²	1,450	—	111	1,561		215	620						1,433	374
1989-90 ²	1,500		77	1,577									1,120	385

¹ Preliminary. ² Forecast. Source: Economic Research Service, U.S.D.A.

T.166

Crude Corn Oil Production in the United States² In Millions of Pounds

Crop Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1980-1	80.6	68.0	59.0	65.8	63.6	76.2	69.6	74.3	76.1	76.2	76.4	77.8	863.6
1981-2	81.4	69.2	66.5	56.7	64.9	76.4	71.6	77.1	73.9	76.5	79.3	78.0	871.5
1982-3	79.2	72.6	78.4	78.9	73.1	88.2	79.8	85.9	83.6	82.7	92.0	88.2	982.6
1983-4	87.0	85.7	83.2	92.1	87.5	91.1	88.5	94.5	84.4	90.6	86.4	82.0	1,053
1984-5	88.8	75.5	89.6	87.7	84.2	107.3	107.0	110.1	107.7	130.1	101.9	104.0	1,194
1985-6	114.2	101.5	97.1	72.8	97.9	102.2	109.8	118.4	106.3	108.6	119.9	104.1	1,253
1986-7	134.6	120.2	114.0	100.1	102.2	119.3	111.2	123.8	117.5	123.0	114.7	119.5	1,400
1987-8	121.5	115.9	110.6	107.1	110.2	113.4	117.3	125.6	125.4	131.7	132.1	124.5	1,435
1988-9 ¹	123.8	107.5	127.8	125.5	108.6	128.9	122.0	125.1	119.9	118.6	98.7	108.5	1,415
1989-90	121.0												

¹ Preliminary. ² Not seasonally adjusted. Source: Economic Research Service, U.S.D.A.

T.167

U.S. Corn Oil Consumption in Refining In Millions of Pounds

Crop Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1983-4	82.4	82.4	81.6	72.6	64.2	91.8	75.1	85.9	74.6	85.1	93.0	86.5	1,053
1984-5	82.1	86.7	91.0	84.0	71.3	89.4	75.5	106.0	97.4	109.1	96.2	90.8	1,080
1985-6	106.0	95.8	87.1	94.1	87.8	100.9	95.1	103.4	91.2	105.2	97.4	98.1	1,162
1986-7	101.2	98.9	98.3	95.7	98.4	104.0	88.7	83.1	90.9	82.6	77.1	92.3	1,111
1987-8 ¹	99.2	90.5	78.3	77.7	93.4	90.0	91.7	103.6	104.1	100.6	119.0	110.6	1,159
1988-9 ¹	100.8	101.2	107.9	116.5	98.6	118.0	89.5	110.1	106.2	100.1	107.5	98.0	1,254
1989-90 ¹	119.2												

¹ Preliminary. Source: Bureau of the Census

T.167A

Corn Oil Spot Price, Crude, Wet Mill at Chicago In Cents Per Pound

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
1978-9	34.0	35.0	31.0	35.0	34.0	33.3	32.1	33.0	30.0	31.0	32.3	32.5	32.8
1979-0	32.8	29.9	33.3	27.5	29.0	26.0	20.0	23.0	22.0	27.3	29.8	28.0	27.4
1980-1	28.0	27.5	28.0	26.3	25.0	23.8	25.5	24.4	24.5	25.8	22.3	21.5	25.2
1981-2	20.0	21.0	25.0	24.0	29.0	25.0	25.0	24.0	23.5	23.0	20.5	21.0	23.4
1982-3	23.0	23.8	24.0	22.5	24.5	21.5	21.0	22.5	22.0	20.0	25.0	36.0	23.8
1983-4	27.5	28.0	25.8	27.0	25.3	26.5	30.0	38.8	35.7	26.0	23.8	29.0	26.6
1984-5	30.5	34.2	30.7	28.7	30.0	31.0	32.5	31.5	30.8	N.A.	N.A.	N.A.	31.1
1985-6	20.9 ²	20.2	20.1	20.8	18.7	17.1	17.9	18.0	17.3	17.0	16.7	16.7	17.0
1986-7	19.6	20.5	21.5	22.5	24.6	22.7	20.9	21.4	22.9	21.5	20.0	19.1	21.4
1987-8 ¹	20.68	20.69	21.49	23.09	22.46	21.26	20.44	21.61	26.43	29.56	26.58	24.94	23.27
1988-9 ¹	23.35	21.78	21.22	20.65	20.30	21.61	21.40	21.75	21.44	20.05	19.21	19.39	21.01

¹ Preliminary. ² Prior to Oct. 1985 prices are for F.O.B. Decatur (tank cars). Source: Economic Research Service, U.S.D.A.

T.168

Cotton

World cotton production was expected to fall by 4 percent in 1989/90 to 80.57 million bales, due to declines in the U.S., China, and the Soviet Union. The Chinese crop was estimated at 19 million bales, down about 100,000 bales. The Soviet Union was expected to produce 12 million bales, down 6 percent from a year earlier. Pakistani production was estimated at 7.1 million bales, 7 percent above 1988/89.

World mill use of cotton was placed at 85.9 million bales, up 2 percent from 1988/89. Use was rising in the U.S. and Asia, particularly Pakistan. Demand for cotton textiles remained very strong, and developing countries were working to expand their textile industries. Textiles products are value-added goods, which generate more foreign exchange than raw products.

China is the largest cotton consumer, with 1989/90 mill use projected at 20 million bales. Spot shortages of raw cotton at Chinese mills have caused China to purchase U.S. cotton. Soviet cotton mills were expected to consume 9.1 million bales, the same as a year earlier. Pakistan's mill consumption was put at 4.2 million bales, up from 3.9 million.

Global exports of cotton were projected at 25.3 million bales, down 2 percent from 1988/89. U.S. exports increased, while declines were expected in China, Pakistan, and the USSR. China was expected to be a net importer of 500,000 bales. The Soviet Union was forecast to export 3.4 million bales, 300,000 less than the prior season. Despite a larger crop, Pakistan was projected to export 2.3 million bales, down from 3.9 million a year earlier.

World carry-in stocks of cotton were about 4 percent lower. With a smaller crop, global supplies of cotton were expected to be 111.4 million bales, down from 116.4 million the previous season.

World ending stocks of cotton were forecast at 25.1 million bales, 8 percent below the season before. The U.S. share of world ending stocks was estimated at 14 percent or 3.6 million bales. Chinese ending stocks were projected at 5.1 million bales, the same as a year earlier. The Soviet carryover was forecast to fall by 7 percent to 1.3

million bales.

The 1989/90 U.S. cotton crop was 12.1 million bales, 20 percent below the year before. Harvested area was 9.5 million acres, down by over 15 percent. The national average yield was 608 pounds per acre. Mississippi, Louisiana and Arkansas received very heavy rains during the season, limiting potential yields. In Texas, there was an early frost and subsequent cold weather. The Texas upland cotton crop was estimated at 2.8 million bales, compared to 5.2 million the year before.

With carry-in stocks of 7.1 million bales, total U.S. supplies of cotton in 1989/90 were 19.2 million bales, down 9 percent from a year earlier. Mill use of cotton was strong and was projected to rise 5 percent to 8.2 million bales. Consumer demand for most cotton textile products remained good, and many mills worked full schedules.

U.S. cotton exports were projected to rise to 7.5 million bales, up 22 percent from the previous season. Shipments to Japan and China were expected to increase, while sales to South Korea rose slightly.

Projected U.S. ending stocks were 3.6 million bales, down 50 percent from the previous season.

U.S. Government Program

The 1990 price support loan rate was 50.27 cents per pound, up from 50 cents in 1989. The target price was set at 72.9 cents, compared to 73.4 cents the previous year. To qualify for program benefits, producers had to reduce acreage by 12.5 percent, compared to 25 percent in 1989.

The marketing loan plan B was to be used for the 1990 crop, as it was in the previous season. Under the plan, cotton pledged as collateral for a price support loan may be repaid at the lower of the adjusted world price or the loan level. The USDA calculates the world cotton price each week.

Futures Market

Cotton futures are traded on the New York Cotton Exchange (NYCE).

Supply and Distribution of All Cotton in the United States In Thousands of (480-Lb. Net Weight) Bales

Crop Year Beginning Aug. 1	Area		Supply					Disappearance					World "A" Index Price ⁶	Value of Production		
	Planted	Harvested	Yield	Beginning stocks ¹	Production ²	Imports	Total	Mill use	Exports	Total	Unac- counted	Ending stocks			Farm price ³	
	Lbs./ acre															
	-1,000	acres-					1,000	480-lb. bales						cents	per lb.	Million \$
1982	11,345	9,734	590	6,632	11,963	20	18,615	5,512	5,207	10,719	41	7,937	59.4	76.65		3,410
1983	7,926	7,348	508	7,937	7,771	12	15,721	5,928	6,786	12,714	-232	2,775	66.4	87.61		2,478
1984	11,145	10,380	600	2,775	12,982	24	15,781	5,540	6,215	11,755	76	4,102	57.8	69.18		3,603
1985	10,685	10,229	630	4,102	13,432	33	17,567	6,399	1,960	8,359	140	9,348	56.3	48.90		3,645
1986	10,045	8,468	552	9,348	9,731	3	19,082	7,452	6,684	14,136	80	5,026	52.4	61.98		2,449
1987	10,407	10,035	706	5,026	14,760	2	19,788	7,617	6,582	14,199	182	5,771	64.3	72.65		4,547
1988 ⁴	12,510	11,943	619	5,771	15,411	5	21,187	7,792	6,211	14,003	-91	7,093	55.5	66.42		8,553
1989 ⁵	10,546	9,566	607	7,093	12,102	2	19,197	8,200	7,800	16,000	103	3,300				

¹ Excludes preseason ginnings. ² Includes preseason ginnings. ³ Includes allowance for unredeemed loans. ⁴ Preliminary. ⁵ Projected

⁶ Average of 5 cheapest types of SLM 1 1/2" staple length cotton offered on the European market. Source: Economic Research Service U.S.D.A.

COTTON

Cotton World Supply and Demand In Thousands of 480-lb. Bales

Yr. Begin. Aug. 1	Beginning Stocks				Production				Consumption				Exports			
	US	USSR	PR China	World Total	US	USSR	PR China	World Total	US	USSR	PR China	World Total	US	USSR	PR China	World Total
1978-9	5,347	2,465	2,500	26,158	10,856	11,907	9,950	59,639	6,352	9,075	13,100	63,286	6,180	3,756	15	19,790
1979-0	3,958	1,895	1,460	21,735	14,629	12,833	10,100	65,736	6,506	9,100	14,100	66,155	9,229	3,770	12	23,244
1980-1	3,000	2,154	1,548	21,177	11,122	13,498	12,400	64,996	5,891	9,150	15,100	65,969	5,926	4,070	6	19,713
1981-2	2,668	2,585	2,392	20,455	15,646	13,277	13,600	71,195	5,264	9,150	16,200	66,131	6,567	4,295	0	20,239
1982-3	6,632	2,527	1,892	25,181	11,963	11,939	16,500	68,080	5,513	9,200	16,400	68,249	5,207	3,890	75	19,452
1983-4	7,937	1,900	3,101	25,198	7,771	9,976	21,300	65,557	5,928	8,750	16,000	68,307	6,786	3,202	760	19,166
1984-5	2,775	707	8,305	23,952	12,982	11,928	28,701	88,960	5,540	9,000	16,000	70,155	6,215	2,994	944	20,206
1985-6	4,102	1,460	20,146	43,246	13,432	12,777	19,000	80,520	6,399	9,400	19,500	77,159	1,960	3,170	2,799	20,247
1986-7	9,348	2,260	16,848	47,243	9,731	12,157	16,300	70,705	7,452	9,350	20,200	82,698	6,684	3,462	3,169	25,944
1987-8 ¹	5,026	1,971	9,795	34,893	14,760	11,345	19,500	80,947	7,617	9,000	20,500	84,032	6,582	3,457	2,322	23,143
1988-9 ²	5,771	1,242	6,559	32,076	15,411	12,700	19,100	84,197	7,792	9,100	20,000	84,602	6,147	3,700	1,650	25,883
1989-0 ²	7,093	1,442	5,609	30,529	12,233	12,000	19,000	80,395	8,200	9,100	20,000	85,866	7,500	3,400	1,000	25,040

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.168a

World Production of Cotton (All Types) In Thousands of Bales (480-Lb. Bales)

Year Begin. Aug. 1	Argen- tina	Brazil	PR China	Egypt	India	Iran	Mex- ico	Pakis- tan	Israel	Sudan	Colom- bia	Tur- key	United States	USSR	World Total
1977-8	1,011	2,237	9,411	1,832	5,548	817	1,620	2,643	294	911	639	2,639	14,389	12,154	63,515
1978-9	797	2,623	9,958	2,014	6,191	612	1,563	2,176	363	637	371	2,191	10,856	11,694	59,446
1979-0	667	2,650	10,137	2,221	6,260	455	1,509	3,344	346	523	574	2,191	14,629	12,070	64,642
1980-1	384	2,862	12,429	2,428	6,256	262	1,620	3,281	359	446	527	2,297	11,122	12,224	63,741
1981-2	696	2,941	13,632	2,293	6,559	356	1,440	3,435	423	712	404	2,242	15,641	11,267	68,892
1982-3	511	2,976	16,526	2,115	6,481	431	840	3,783	400	944	151	2,246	11,963	10,380	66,136
1983-4	827	3,423	21,298	1,879	5,870	420	1,038	2,271	427	1,021	352	2,398	7,771	9,976	66,253
1984-5	787	4,431	28,720	1,833	7,927	512	1,110	4,631	402	933	575	2,664	12,982	11,928	87,864
1985-6	551	3,644	19,046	1,999	8,979	482	1,010	5,587	455	651	520	2,379	13,432	12,778	79,798
1986-7	459	2,909	16,261	1,850	7,418	510	638	6,059	308	748	490	2,376	9,731	12,217	70,422
1987-8	1,295	3,968	19,500	1,615	7,105	478	1,025	6,686	269	622	614	2,465	14,760	11,331	81,215
1988-9 ¹	873	3,244	19,093	1,426	8,120	505	1,417	6,405	285	747	554	2,967	15,412	13,517	84,829
1989-90 ²	993	3,780	18,649	1,685	8,484	561	838	6,900	183	774	673	2,850	11,834	11,300	79,725

¹ Preliminary. ² Estimate. Source: International Cotton Advisory Committee

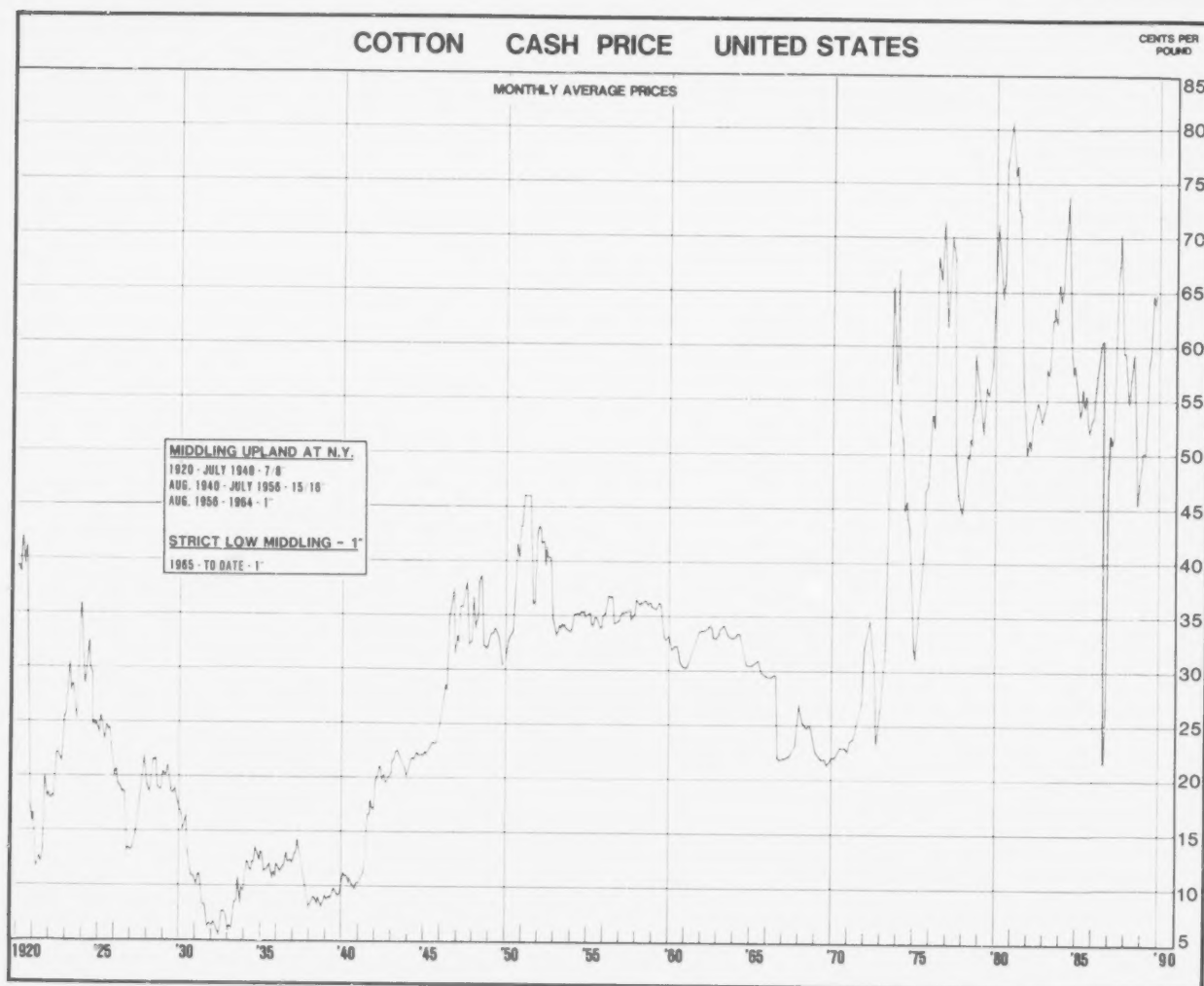
T.169

World Consumption³ of All Cottons in Specified Countries In Thousands of Bales (480 Pounds Net²)

Yr. Beg. Aug. 1	Argen- tina	Brazil	PR China	Egypt	Pol- and	France	W. Ger- many	India	Italy	Japan	Mexico	Pakis- tan	Un. King- dom	United States	USSR	World Total
1977-8	478	2,241	12,050	1,295	697	846	807	5,288	837	2,988	737	1,872	413	6,509	8,550	60,435
1978-9	503	2,440	13,228	1,319	727	822	777	5,715	975	3,371	757	1,975	447	6,352	8,530	63,210
1979-0	468	2,589	13,972	1,295	782	846	789	5,944	1,047	3,408	757	1,898	400	6,506	8,510	65,116
1980-1	382	2,601	15,024	1,477	735	747	792	6,258	958	3,286	759	2,119	220	5,891	8,250	65,281
1981-2	359	2,631	16,285	1,341	606	743	795	5,837	1,028	3,383	708	2,334	207	5,264	7,855	64,666
1982-3	477	2,603	16,822	1,186	610	765	928	6,259	1,052	3,291	630	2,426	207	5,513	7,600	66,397
1983-4	515	2,553	15,617	1,194	619	745	989	6,651	1,140	3,277	528	2,311	207	5,926	7,900	67,286
1984-5	484	2,753	16,168	1,340	621	728	1,000	7,147	1,212	3,181	556	2,503	201	5,540	8,630	69,575
1985-6	588	3,180	18,717	1,424	662	704	980	7,099	1,185	3,098	634	2,449	217	6,399	9,200	75,861
1986-7	588	3,485	20,977	1,387	710	722	1,117	7,883	1,419	3,430	550	3,209	229	7,452	9,400	83,962
1987-8	597	3,721	20,183	1,322	746	698	1,055	7,571	1,511	3,430	683	3,498	219	7,617	9,000	83,449
1988-9 ¹	459	3,877	19,800	1,305	773	648	910	8,127	1,430	3,530	778	3,865	186	7,550	9,300	84,284
1989-90 ⁴	459	3,700	21,000	1,290	794	635	919	8,386	1,444	3,400	778	4,400	182	7,700	9,000	86,536

¹ Preliminary. ² Except for the U.S. which are in running bales. ³ Includes estimates for hand spinning in some countries. Excludes cotton burned or otherwise destroyed. ⁴ Estimate. Source: International Cotton Advisory Committee

T.173



Average Spot Cotton Prices,² C.I.F. Northern Europe In Cents Per Pound (Equivalent U.S. ¢/Lb.)

Crop Year (Aug.-July)	M 1" U.S. Orleans/ Texas	Pakistan N.T. Sind SG	Central Amer. ³ M 1 3/32"	U.S. Memphis M 1 3/32"	Greece M 1 3/32"	Egypt Giza 16/75/51 FG	SM 1 1/16-1 1/32" Mexico M 1 3/32"	Peru Tang- uis #3	Argen- tine "C" 1 1/8"	USSR ⁴ Vitoroi	Tanza- nia A.R. MWANZA ⁵	Turkey Izmir (12 MIR)	SM 1 1/8" U.S. Calif.	Aus- tralian M-1 3/32"
1978-79	67.22		75.23	76.25	83.09		75.99	97.79		77.92		73.46	82.96	
1979-80	75.36	75.41	83.63	87.49	84.00	136.37	85.86	101.14		85.89	92.33	90.25	90.69	
1980-81	89.14	84.94	93.47	101.23	100.53	137.66	94.91	104.15	83.18	92.80	103.25	96.65	101.85	
1981-82	66.76	65.65	72.87	76.30	81.00	115.73	75.28	83.42	63.75	73.02	88.08	77.55	79.79	
1982-83	68.11	65.59	76.14	77.94	85.74	110.07	76.39	82.58	41.58	70.68	87.50	83.44	84.94	
1983-84	78.41	75.20	86.81	87.09	94.37	134.07	87.42	102.50	83.27	91.15	95.14	92.74	94.90	90.83
1984-85	65.95	56.22	66.96	73.69	74.36	134.01	70.14	82.64	60.96	—	78.36	74.58	76.20	67.79
1985-86	52.26	37.35	51.38	58.28	50.98	111.40	52.94	74.26	48.34	47.63	55.81	54.13	59.43	50.15
1986-87	56.38	55.48	63.09	62.17	63.53	112.59	64.86	85.50	68.82	62.85	67.41	64.87	74.27	67.05
1987-88 ¹	72.07	66.47	72.93	76.29	83.85	145.11	75.18	117.60	61.93	76.18	87.96	86.21	81.17	75.99
1988-89 ¹	63.14	57.17	60.76	68.94	62.93	154.25	61.64	89.75	63.87	66.18	68.00	66.77	77.09	59.19
May '89	72.44	70.83		76.88					72.25	78.31			84.81	
June '89	74.35			77.85					73.75	79.20			85.05	
July '89	78.00			83.08					75.08	82.67			89.00	

¹ Preliminary. ² Generally for prompt shipment. ³ Cent. Amer. 1986-7 to date. Prior data for Guatemala SM 1 1/16". ⁴ Prior to 11/81 PERVY-SM 1/16". ⁵ No. 1/2 until 2/86; No. 3 since. Source: International Cotton Advisory Committee

T.172

COTTON

Average Price of Strict Low Middling, 1¹/₁₆ ", Cotton at Designated U.S. Markets c/Lb. (Net Weight)

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
1979-0	62.08	62.15	62.88	63.40	66.20	72.40	80.66	79.24	79.05	78.27	72.41	79.01	71.48
1980-1	85.60	87.51	85.78	87.05	87.23	85.11	83.30	81.52	81.15	78.46	78.12	75.08	82.99
1981-2	66.44	60.81	60.63	57.47	55.11	57.82	57.26	59.73	62.03	62.44	61.10	64.96	60.48
1982-3	60.38	58.98	58.58	58.20	59.65	60.16	61.72	66.05	65.33	66.88	70.74	70.27	63.08
1983-4	72.93	71.68	72.01	73.41	73.04	70.55	71.38	74.89	75.64	79.44	75.00	67.35	73.11
1984-5	63.01	61.16	61.15	60.43	60.45	59.96	58.65	60.18	61.71	60.11	59.76	59.55	60.51
1985-6	57.87	56.38	56.14	56.03	56.25	58.39	59.81	61.75	62.62	63.95	65.24	65.73	60.01
1986-7	26.81	33.56	43.95	45.74	54.19	57.17	54.75	54.60	57.72	65.94	70.42	73.07	53.16
1987-8	75.89	71.41	64.30	64.66	62.26	59.69	57.83	59.64	60.07	61.55	62.86	57.40	63.13
1988-9	55.20	51.25	52.20	53.40	54.80	55.67	55.37	57.59	61.43	63.70	64.06	67.39	57.67
1989-90	69.88	68.46	69.40	68.33	63.56								

Note: Grade 41. Source: Department of Agriculture

T.190

Average Spot Cotton, 1³/₃₂ ", Price (SLM) at Designated U.S. Markets In Cents Per Pound (Net Weight)

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average	1 ¹ / ₃₂ "	1"
1979-0	62.47	62.54	63.28	63.81	66.58	72.78	81.05	79.63	79.44	78.66	72.80	79.40	71.87	69.53	63.39
1980-1	86.00	87.91	86.18	87.45	87.63	85.57	83.70	81.92	81.55	78.86	78.52	75.48	83.39	80.95	75.70
1981-2	66.84	61.22	61.08	57.91	55.52	58.24	57.70	60.12	62.41	62.82	61.48	N.A.	60.89	58.28	54.13
1982-3	60.76	59.36	58.97	58.57	60.02	60.53	62.09	66.43	65.72	67.31	71.20	70.73	63.47	61.17	56.41
1983-4	70.52	69.29	69.49	70.82	70.44	68.03	68.98	72.56	73.37	77.18	72.74	65.11	73.55	70.71	66.32
1984-5	63.45	61.60	60.71	59.99	60.01	59.52	58.21	59.74	61.27	59.67	59.32	59.99	60.29	58.30	55.98
1985-6	57.40	55.89	55.66	55.55	55.77	57.92	59.34	61.28	62.15	63.48	64.77	66.20	59.62	57.87	55.81
1986-7	27.39	35.56	44.53	46.27	54.71	57.70	55.26	55.12	58.24	66.46	70.94	73.59	53.81	50.78	47.77
1987-8	76.42	71.99	64.84	65.17	62.76	60.14	58.28	60.12	60.55	62.03	63.34	57.88	63.63	60.81	59.33
1988-9	55.69	51.80	52.66	53.80	55.20	56.07	55.77	58.04	61.94	64.21	64.57	67.92	58.14	53.99	52.32
1989-90	70.42	69.00	69.89												

Source: Agricultural Marketing Service, U.S.D.A.

T.191

Average Spot Prices of U.S. Cotton,¹ Base Quality—(SLM) at Designated Markets In Cents Per Pound

Yr. Begin. Aug. 1	At- lanta	Au- gusta	Char- les- ton	Dallas	Fresno	Gal- veston	Green- ville	Green- wood	Houston	Little Rock	Lubbock	Mem- phis	Mont- gomery	Phoenix	Aver- age
1979-0	—	73.92	—	66.91	73.76	—	73.24	72.73	—	—	66.43	72.55	72.57	71.98	71.48
1980-1	—	85.21	—	80.65	82.80	—	84.54	84.30	—	—	79.66	83.81	84.28	81.70	82.99
1981-2	—	61.87	—	58.32	61.02	—	61.57	61.34	—	—	57.96	61.00	61.34	59.93	60.48
1982-3	—	—	—	61.62	64.49	—	63.50	63.35	—	—	60.84	63.33	63.50	63.17	63.08
1983-4	—	—	—	70.79	77.02	—	73.28	73.14	—	—	70.35	73.25	72.93	74.13	73.11
1984-5	—	—	—	58.94	61.29	—	61.08	60.98	—	—	58.93	60.73	60.56	61.57	60.51
1985-6	—	—	—	58.96	60.35	—	60.52	60.69	—	—	59.17	60.40	60.17	59.84	60.01
1986-7	—	—	—	51.03	60.97	—	51.66	51.99	—	—	51.20	51.70	51.34	55.38	53.16
1987-8	—	—	—	61.14	66.02	—	63.37	62.41	—	—	61.09	62.54	62.79	65.69	63.13
1988-9	—	—	—	55.88	63.30	—	57.26	56.67	—	—	55.77	56.71	57.26	59.67	57.90

¹ Mixed Lots, Net Weight, uncompressed in warehouse. Source: Agricultural Marketing Service, U.S.D.A.

T.177

Avg. Price¹ Received by Farmers for Upland Cotton in the U.S. In Cents Per Pound

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average ¹
1979-0	59.2	57.3	61.2	61.0	59.8	60.9	64.9	62.9	61.0	63.6	62.2	71.5	62.3
1980-1	73.7	73.9	75.3	77.6	80.9	76.6	70.8	71.9	72.7	72.5	71.2	70.4	74.4
1981-2	65.0	58.1	63.2	61.1	51.5	50.3	49.1	50.4	54.3	55.8	58.1	59.9	54.0
1982-3	52.7	56.0	60.9	61.0	57.7	57.0	57.7	62.2	60.4	63.6	62.6	67.1	59.5
1983-4	64.6	62.8	63.1	67.0	66.2	62.7	65.0	70.1	67.2	72.7	68.0	65.9	65.3
1984-5	67.3	65.6	64.4	62.0	56.1	52.2	49.5	56.1	57.0	57.5	60.3	60.5	58.7
1985-6	56.6	55.9	57.3	56.5	53.7	54.0	56.9	58.1	59.2	58.5	58.5	61.5	56.8
1986-7	46.8	48.6	50.0	52.6	52.7	52.1	46.4	47.5	50.4	60.0	66.2	68.3	51.5
1987-8	65.3	64.9	64.1	64.4	64.2	60.6	56.8	57.7	59.4	58.9	61.2	58.6	63.7
1988-9 ²	52.6	51.8	54.2	56.5	55.3	53.9	52.9	56.3	58.9	58.8	58.8	60.6	55.9
1989-90 ²	61.1	63.8	66.0	65.8	62.7								

¹ Weighted average by sales. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.187

Purchases Reported by Exchanges in Designated U.S. Spot Markets In Running Bales

Yr. Begin August 1	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1984	258,511	154,557	271,195	558,999	1,153,086	1,015,087	570,259	287,483	303,501	159,540	123,089	131,035	4,986,342
1985	166,725	152,795	258,891	395,097	570,460	671,758	389,436	416,654	487,813	626,319	968,185	690,947	5,795,080
1986	585,628	638,356	392,451	422,542	1,353,241	1,055,081	633,852	354,643	501,265	354,008	163,307	160,474	6,614,848
1987	152,935	252,669	650,349	718,829	1,065,457	622,727	571,851	463,739	266,545	572,702	336,191	117,645	5,791,639
1988	288,187	166,692	230,724	163,642	323,025	383,699	811,630	388,169	307,937	282,564	261,958	282,288	3,890,515
1989	119,516	49,237	89,853	214,910	258,849								

¹ Purchases are for 10 markets; commencing February 1980 purchases are for nine markets; and commencing March 28, 1983 purchases are for eight markets. Source: Agricultural Marketing Service: U.S.D.A.

T.190a

Month-End Open Interest of Cotton Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	32,246	28,060	34,212	29,596	30,569	22,239	21,734	21,576	20,419	22,547	19,211	16,614
1985	19,790	17,660	18,678	14,101	16,481	15,381	19,386	20,861	21,011	22,889	23,196	21,748
1986	23,326	20,824	20,112	20,121	23,702	22,505	25,321	27,642	23,406	24,432	20,534	23,035
1987	26,077	23,482	23,190	25,753	27,990	28,140	35,719	39,148	39,840	39,750	34,600	33,204
1988	38,121	32,220	30,164	26,656	32,811	27,979	30,250	37,102	37,607	35,795	27,662	30,573
1989	32,268	32,637	37,450	37,280	42,567	38,594	42,911	48,208	49,318	51,056	40,444	39,656

Source: N.Y. Cotton Exchange

T.182

Volume of Trading of Cotton Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	97,947	123,620	139,032	132,447	139,953	153,932	143,116	156,680	121,972	113,759	137,472	90,187	1,550,117
1984	124,735	133,891	127,448	126,780	139,988	111,050	71,522	51,941	39,519	83,631	86,729	39,907	1,137,141
1985	61,860	57,034	61,921	65,709	47,606	47,604	41,069	40,524	42,747	55,046	63,829	51,543	636,492
1986	73,576	77,152	57,433	74,520	57,479	64,742	75,545	94,025	130,989	111,359	113,812	84,618	1,015,392
1987	110,165	106,520	88,621	106,620	110,303	132,180	98,339	127,048	131,214	124,319	126,582	107,124	1,395,980
1988	114,672	119,832	97,533	118,614	127,880	149,303	89,907	100,447	108,285	135,221	124,221	84,334	1,370,249
1989	124,764	135,963	113,028	118,573	135,044	167,442	91,381	151,034	165,255	143,713	178,889	124,034	1,649,120

Source: N.Y. Cotton Exchange

T.183

High, Low & Closing Prices of May Cotton Futures at New York In Cents per Pound

Year of Delivery	Year Prior to Delivery											Delivery Year					Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May		
1983 High	74.65	76.75	76.50	77.50	77.50	74.90	72.15	69.25	68.15	68.90	68.40	71.25	76.42	75.30	71.60	77.50	
Low	73.50	74.20	73.74	69.45	74.50	69.50	66.75	65.80	65.81	66.20	66.35	66.26	70.30	70.25	69.77	65.80	
Close	74.53	76.40	73.30	76.60	74.66	69.90	67.25	67.42	66.62	67.41	67.33	71.20	75.32	71.08	71.03	—	
1984 High	74.60	75.50	80.00	83.40	82.70	83.80	83.40	82.15	83.80	82.05	78.25	78.79	81.85	82.54	84.40	84.40	
Low	70.60	73.25	73.20	79.25	78.20	80.30	78.15	78.70	80.31	78.35	74.75	74.05	77.70	77.90	81.50	66.75	
Close	73.80	73.80	80.00	80.00	81.00	82.80	79.30	81.65	80.98	78.42	77.13	78.09	81.74	82.39	82.39	—	
1985 High	81.85	78.00	79.25	79.15	75.25	71.80	69.00	72.05	71.30	67.66	68.20	66.85	68.25	70.45	68.98	79.25	
Low	77.70	75.80	77.45	75.00	69.60	68.74	67.60	67.36	66.45	66.20	65.70	63.28	63.26	64.75	66.10	63.26	
Close	81.74	78.00	78.60	75.00	69.75	69.15	68.00	69.85	66.95	66.95	65.76	64.18	67.60	66.40	66.33	—	
1986 High	67.55	67.88	66.65	64.25	62.90	61.10	60.90	62.39	63.45	62.10	63.60	64.48	65.85	67.25	68.05	70.55	
Low	66.35	66.52	61.86	62.00	59.95	59.30	59.25	60.45	60.50	59.60	58.80	59.50	61.90	60.70	66.00	58.80	
Close	67.55	66.52	63.13	63.00	60.25	60.05	60.48	67.34	60.75	62.06	60.32	63.45	65.69	66.80	67.20	—	
1987 High	46.70	41.85	40.55	37.30	35.25	38.40	48.90	50.90	52.96	59.50	60.15	57.00	58.70	64.85	66.10	66.10	
Low	40.50	38.30	36.70	33.60	31.56	32.40	35.44	45.51	46.35	52.60	53.30	52.10	54.00	55.55	62.85	31.56	
Close	41.00	40.70	36.73	33.93	34.40	38.40	47.50	47.00	52.96	59.25	54.30	54.60	57.05	64.45	65.61	—	
1988 High	56.80	65.23	74.60	74.25	78.35	81.70	78.85	74.60	73.00	71.20	68.90	64.50	64.90	66.05	67.00	81.70	
Low	52.62	55.90	64.00	68.50	71.75	76.20	72.65	65.00	67.81	63.90	61.60	59.20	60.71	60.25	66.00	50.50	
Close	56.22	65.23	71.30	72.50	78.05	78.50	74.05	68.75	70.05	67.65	62.41	61.28	62.88	66.05	66.73	—	
1989 High	59.90	58.75	63.60	68.70	62.90	56.80	56.18	57.80	57.20	59.79	60.70	60.85	62.75	65.75	68.20	68.70	
Low	57.55	55.35	57.00	60.70	55.70	49.03	50.10	51.75	53.22	55.70	56.01	57.30	59.70	62.20	63.50	49.03	
Close	58.80	56.90	61.75	60.88	56.15	51.72	51.42	56.00	56.70	58.45	60.20	60.54	61.97	64.00	67.71	—	
1990 High	65.40	66.52	70.50	72.70	77.45	78.30	76.85	77.50	78.85	72.38	69.75						
Low	61.38	64.25	65.90	65.30	71.60	74.95	73.10	74.70	70.75	66.75	65.65						
Close	65.27	65.92	70.11	72.00	76.75	76.10	75.10	77.36	71.88	69.49	68.18						

Source: N.Y. Cotton Exchange

T.184

COTTON



United States Government Crop Forecasts and Actual Cotton Crops

Year	Forecasts of Production (1,000 Bales of 480 Lbs. ¹)					Actual Crop	Forecasts of Yields (In Lbs. Per Harv. Acre)					Actual Yield
	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1		Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	
1976	10,734	10,375	10,251	9,891	10,264	10,581	466	451	445	435	451	465
1977	13,535	13,302	13,317	13,832	14,496	14,389	506	495	500	503	525	520
1978	11,820	11,155	10,873	10,981	10,841	10,856	462	425	429	418	421	420
1979	13,710	14,245	14,356	14,544	14,527	14,629	497	525	528	535	534	547
1980	12,812	11,689	11,589	11,224	11,125	11,122	461	421	419	408	411	404
1981	14,789	15,507	15,476	15,560	15,733	15,646	515	540	540	543	546	542
1982	11,143	11,029	11,365	11,947	12,102	11,963	563	569	587	605	613	590
1983	7,810	7,776	7,550	7,497	7,725	7,771	503	501	487	504	506	508
1984	12,569	13,276	13,272	13,271	13,292	12,982	583	615	620	613	610	600
1985	13,780	13,655	13,638	13,875	13,810	13,432	638	632	633	644	644	630
1986	10,676	10,506	10,006	9,875	9,792	9,731	573	565	539	546	539	552
1987	12,907	12,846	13,336	13,936	14,281	14,760	615	616	640	671	695	706
1988	14,934	14,709	14,714	14,837	15,197	15,412	616	605	605	612	627	619
1989	11,834	12,279	11,991	12,102	12,083		618	603	607	608	619	

¹ Net Weight bales. Source: Crop Reporting Board, U.S.D.A.

T.175

U.S. Production of Cotton (Upland) & American-Pima in Thous. of 480-Lb. Net Weight Bales

Crop Year	Upland														New Mex-ico	Total Amer. Pima
	Ala-bama	Ari-zona	Arkan-sas	Cali-fornia	Geor-gia	Loui-siana	Missis-sippi	Mis-souri	No. Car.	Oklahoma	So. Car.	Ten-nessee	Texas			
1978	291	1,068	660	1,940	111	478	1,378	188	45	355	115	235	3,792	101	93.4	
1979	324	1,280	606	3,408	152	690	1,437	157	43	522	116	171	5,515	104	98.6	
1980	275	1,354	444	3,109	86	460	1,143	177	52	205	77	200	3,320	107	104.2	
1981	422	1,556	604	3,535	159	742	1,565	168	95	440	164	315	5,663	141	79.6	
1982	460	1,095	534	3,073	235	870	1,760	204	102	238	155	339	2,700	78	98.7	
1983	183	725	323	1,971	112	532	900	73	43	145	53	151	2,380	70	94.7	
1984	447	1,097	612	2,913	281	1,056	1,650	187	120	183	170	337	3,680	87	130.4	
1985	545	928	703	3,114	370	742	1,655	204	117	285	180	419	3,910	71	155.1	
1986	330	675	602	2,245	185	673	1,190	196	109	210	87	396	2,535	62	205.9	
1987	397	849	901	2,989	338	977	1,745	330	98	346	106	634	4,635	89	284.6	
1988	380	865	1,044	2,824	370	948	1,825	306	133	303	140	584	5,215	102	334	
1989 ¹	390	660	850	2,650	350	875	1,560	269	140	180	155	473	2,900	80	663	

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.176

Gross Entries of Cotton into U.S. Government Loan Program In Thousands of Running Bales (480-Lb.)

Crop Yr.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May ¹	June ¹	July ¹	Total
1978-9	0	5	26	89	215	584	352	189	68	16	14	2	1,560
1979-0	0	2	23	294	319	600	316	110	51	35	8	2	1,759
1980-1	0	2	8	253	528	912	343	204	36	28	16	2	2,328
1981-2	0	9	132	293	1,081	2,796	1,120	473	117	39	21	2	6,083
1982-3	0	46	143	674	1,857	1,590	4,503	4,160	43	23	13	3	5,062
1983-4	0	0	165	227	253	513	188	264	127	9	32	5	1,765
1984-5	0	1	11	98	563	776	1,057	324	62	44	32	5	2,977
1985-6	31	202	771	1,497	1,406	2,375	781	159	61	12	40	60	7,365
1986-7	22	136	775	1,146	1,124	1,664	662	504	97	40	30	6	6,204
1987-8	2	25	400	839	745	1,503	1,305	321	170	44	18	9	5,381
1988-9	10	192	1,131	2,015	2,649	2,400	2,441	354	19	7	8	—	11,238
1989-90	—	21	119	997	1,076								

NOTE: Seasonal totals are net, due to allowances for rejections. ¹ Entries after April 30 represent late reporting. ² Less than one thousand bales. Sources: N.Y. Cotton Exchange; Commodity Credit Corporation

T.178

U.S. Daily Rate of Upland Cotton Mill Consumption² on Cotton-System Spinning Spindles

In Thousands of 480 Lb. Running Bales

Crop Yr.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
1980-1	22.1	22.8	23.9	22.9	19.0	21.8	22.3	21.5	21.7	22.1	21.3	19.3	21.7
1981-2	21.4	20.7	22.4	20.1	16.0	18.9	19.9	19.7	20.5	19.6	18.4	16.0	19.5
1982-3	19.3	19.0	20.8	19.5	17.0	20.2	21.5	22.0	21.5	22.0	21.7	18.4	20.2
1983-4	22.6	22.4	22.9	22.3	18.7	23.5	22.4	21.9	21.5	22.1	20.1	17.7	21.6
1984-5	21.4	20.4	21.4	19.5	16.9	20.0	20.9	20.8	21.0	21.9	21.0	18.5	20.3
1985-6	22.9	22.5	24.6	23.9	19.5	23.8	24.9	24.6	24.8	25.2	24.4	20.9	23.4
1986-7	26.7	26.2	27.3	26.5	23.1	27.3	28.1	29.4	28.7	29.3	28.3	27.0	27.3
1987-8	30.3	30.1	31.0	30.3	24.4	28.4	29.5	29.5	27.8	27.6	26.5	21.7	28.1
1988-9 ¹	28.2	27.0	26.9	25.5	22.2	27.7	28.5	29.4	30.5	31.6	31.2	27.2	28.6
1989-90 ¹	33.2	33.1	33.2	30.9									

¹ Preliminary. ² Not seasonally adjusted. Source: Bureau of the Census; U.S.D.C.

T.180

COTTON

Consumption of American and Foreign Cotton in the United States In Thousands of Running Bales

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1980-1	443	456	597	458	475	435	446	539	435	441	531	385	5,641
1981-2	429	517	448	403	400	378	398	493	410	392	460	317	5,038
1982-3	386	474	416	391	425	404	430	549	431	441	543	369	5,259
1983-4	453	560	459	446	468	469	448	548	430	442	503	354	5,628
1984-5	428	509	428	390	423	399	418	519	419	439	525	369	5,268
1985-6	458	562	493	477	486	595	499	492	620	503	489	522	6,198
1986-7	534	523	683	529	576	546	562	734	573	586	708	540	7,096
1987-8	606	753	621	606	610	568	590	738	556	551	662	433	7,294
1988-9 ¹	563	676	538	509	554	554	570	734	609	631	781	545	7,444
1989-90 ¹	663	829	665	617	659								

¹ Preliminary. Source: Bureau of the Census

T.188

Exports of American Cotton from the United States In Thousands of Running Bales

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1980-1	402	393	237	436	541	669	2,352	733	498	458	320	264	7,303
1981-2	990	261	262	478	737	653	754	873	676	484	498	396	7,062
1982-3	342	351	293	382	377	438	368	487	612	464	831	409	5,354
1983-4	383	322	261	441	632	663	719	896	723	607	422	365	6,434
1984-5	452	264	292	484	629	793	766	625	544	426	353	252	5,880
1985-6	193	187	207	223	187	396	180	176	163	76	55	21	2,064
1986-7 ¹	261	346	314	529	3,149	429	499	595	529	512	422	400	7,985
1987-8 ¹	395	295	346	580	681	626	698	735	541	488	523	303	6,211
1988-9 ¹	249	249	224	379	632	448	684	619	610	672	233	850	5,849
1989-90 ¹	480	466	495										

¹ Preliminary. Source: Foreign Agricultural Service, U.S.D.A.

T.185

U.S. Exports of American Cotton to Countries of Destination In Thousands of 480-Pound Bales

Yr. Beg. Aug. 1	Bangla- desh	Can- ada	Hong Kong	France	W. Ger- many	Egypt	Italy	Japan	Indo- nesia	Spain	Swe- den	United King- dom	Rep. of Korea	P.R. China	Tai- wan	USSR	World Total
1980-1	33	267	205	42	112		54	1,139		60	10	38	1,303	1,375	351		5,926
1981-2	50	167	243	58	119		106	1,626		57	17	43	1,412	848	777	0	6,567
1982-3	88	238	158	45	163		105	1,286		72	23	50	1,322	20	378	192	5,207
1983-4	135	227	283	154	195	0	252	1,709	320	114	28	67	1,269	12	495	351	6,785
1984-5	60	195	125	132	195	126	301	1,464	258	118	22	72	1,257	6	513	329	6,211
1985-6	14	98	1	8	85	120	91	520	105	29	15	35	513	0	46	0	1,958
1986-7	89	70	324	114	263	68	263	1,330	1,723	60	15	56	46	0	52	0	6,684
1987-8 ¹	42	153	88	67	376	93	406	1,569	287	83	19	69	1,450	0	424	98	6,582
1988-9 ¹	58	148	108	9	255	102	239	1,381	307	51	16	37	1,302	793	254	2	6,147

¹ Preliminary. Source: Bureau of the Census

T.189

Cotton Government Loan Program in the United States

Crop Year Begin Aug. 1	Support Price — ¢ per lb. —	Target Price	Put under Support ths. bales	% of Prod- uction	CCC Acqu- ired — ths. bales —	Owned July 31	Crop Year Begin Aug. 1	Support Price — ¢ per lb. —	Target	Put under Support ths. bales	% of Prod- uction	CCC Acqu- ired — ths. bales —	Owned July 31
1982-3	57.08	71.00	5,003	42.2	786	397	1986-7	55.00	81.00	6,168	64.8	7	73
1983-4	55.00	76.00	1,743	22.7	0	158	1987-8	52.25	79.40	5,361	37.6	0	0
1984-5	55.00	81.00	2,957	23.0	649	123	1988-9	51.80	75.90	11,225			
1985-6	57.30	81.00	7,289	54.9	158	767	1989-90	50.00	73.40	158			

Source: Economic Research Service, U.S.D.A.

COTTON

U.S. Imports of Cotton Cloth (Raw Cotton Equivalent) In Thousands of Bales (Net Weight—480 Lbs.)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	99.2	96.5	102.1	97.9	79.1	98.9	101.7	91.3	80.1	80.6	66.0	59.8	1,053.2
1985	60.5	85.4	86.0	77.3	94.0	81.5	81.2	72.6	91.8	95.5	98.9	100.2	1,024.9
1986	116.4	109.1	128.9	116.6	106.5	104.8	127.1	109.6	100.2	98.8	96.3	107.9	1,322.2
1987 ¹	119.9	142.1	136.4	119.6	119.3	140.4	143.3	140.4	130.1	146.6	143.8	135.3	1,617.2
1988 ¹	98.7	102.6	107.6	98.6	90.4	87.3	86.0	91.6	87.2	92.9	94.5	109.4	1,146.8

¹ Preliminary. Source: Bureau of the Census

U.S. Exports of Cotton Cloth (Raw Cotton Equivalent) In Thousands of Bales (Net Weight—480 Lbs.)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	50.6	54.2	52.4	45.2	42.4	47.2	34.6	44.3	48.0	42.0	38.4	40.9	540.2
1981	34.8	28.2	35.8	35.7	30.9	30.8	21.7	25.9	25.8	27.5	26.6	21.9	345.6
1982	18.2	18.6	20.4	20.6	24.3	24.8	22.7	15.7	18.4	20.7	18.4	16.4	239.2
1983	20.1	15.1	18.2	17.2	14.2	15.9	12.7	14.0	15.4	16.0	15.3	14.8	188.8
1984	14.2	12.3	13.6	13.4	14.2	16.9	13.5	12.8	15.7	16.7	14.1	13.5	170.9
1985	18.7	15.2	19.8	21.2	17.3	18.6	15.7	21.6	24.7	17.4	15.6	14.7	220.5
1986	17.5	20.1	23.6	23.5	27.4	23.6	17.3	30.1	26.2	26.1	28.2	30.0	293.6
1987 ¹	20.2	27.5	25.4	21.7	20.3	22.1	19.0	23.0	19.9	20.6	20.5	19.9	260.0
1988 ¹	18.5	18.1	23.9	20.4	19.3	20.4	16.8	19.3	25.0	20.5	22.8	25.4	250.4

¹ Preliminary. Source: Bureau of the Census

T.193

United States Cotton Ginnings To: In Thousands of Running Bales

Crop Year	Aug. 1	Aug. 16	Sept. 1	Sept. 16	Oct. 1	Oct. 15	Nov. 1	Nov. 15	Dec. 1	Dec. 15	Jan. 1	Jan. 15	Feb. 1	Total Crop
1981-2	44	N.A.	427	645	1,725	3,299	5,541	7,688	10,156	12,023	13,460	14,276	14,778	15,150
1982-3	40	N.A.	453	578	1,529	2,660	5,288	7,202	8,823	9,627	10,574	10,974	11,300	11,526
1983-4	2	N.A.	315	397	763	1,748	3,348	4,638	6,003	6,880	7,209	7,389	7,476	7,504
1984-5	163	N.A.	634	780	1,175	2,277	4,321	7,025	8,972	10,478	11,079	11,682	12,319	12,545
1985-6	70	N.A.	681	1,073	2,431	4,342	6,246	8,216	10,052	11,372	12,365	12,776	12,948	12,988
1986-7	145	N.A.	624	1,022	2,407	3,618	5,292	6,369	7,491	8,263	8,588	9,093	9,270	9,438
1987-8	1	N.A.	429	1,242	3,196	5,359	7,531	9,135	11,082	12,588	13,276	13,737	14,180	14,358
1988-9	136	N.A.	804	1,147	2,279	4,108	6,888	9,449	11,698	13,257	14,248	14,686	14,904	14,985
1989-90 ¹	90	N.A.	382	524	981	2,773	5,806	8,389	10,357	11,297	11,558	11,684		

¹ Preliminary. Source: Bureau of Census

T.171

U.S. Fiber Prices In Cents per Pound

Year	Cotton ¹		Rayon ²		Polyester ³		Price Ratios ⁴ in Percent	
	Actual	Raw ⁵ Equivalent	Actual	Raw ⁵ Equivalent	Actual	Raw ⁵ Equivalent	Cotton/Rayon	Cotton/Polyester
1982	68	76	84	88	77	80	.86	.95
1983	78	86	80	84	73	76	1.02	1.13
1984	76	84	84	88	79	82	.95	1.02
1985	66	73	79	82	66	69	.89	1.06
1986	61	68	76	79	62	65	.86	1.05
1987	73	81	81	84	66	69	.96	1.17
1988	65	72	83	87	74	77	.77	.94
1989 Jan.	64	71	100	104	81	84	.68	.85
Feb.	63	70	100	104	81	84	.67	.83
Mar.	66	73	100	104	81	84	.70	.87
Apr.	69	76	110	115	81	84	.66	.90
May	72	80	110	115	81	84	.69	.95
June	73	81	110	115	89	93	.70	.87
July	76	84	110	115	89	93	.73	.90

¹ SLM-1 1/16" at group B Mill points, net weight. ² 1.5 and 3.0 denier, regular rayon staple. ³ Reported average market price for 1.5 denier polyester staple for cotton blending. ⁴ Raw fiber equivalent. ⁵ Actual prices converted to estimated raw fiber equivalent as follows: cotton, divided by 0.90, rayon and polyester, divided by 0.96. Source: USDA, Agricultural Marketing Service and trade reports.

COTTON

Average Producer Price of Gray Cotton Broadwovens Index 1982 = 100¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	244.9	246.2	246.7	248.2	248.1	247.8	248.0	244.9	242.9	242.0	240.9	239.7	245.0
1985	239.5	237.3	237.1	235.5	235.7	235.3	235.1	232.3	231.7	231.8	231.7	231.6	234.6
1986	228.0	228.4	228.6	229.7	230.1	230.0	230.0	228.1	226.9	226.2	227.2	229.4	228.6
1987 ¹	101.8	101.8	101.9	102.5	103.0	103.3	106.0	103.9	107.1	109.5	110.6	111.5	105.2
1988	112.7	114.3	114.5	115.9	116.2	116.1	115.9	115.6	114.8	111.9	112.5	112.3	114.4
1989 ²	112.4	111.3	110.9	110.9	110.5	110.1	109.4	110.0	109.8	110.4	111.0		

¹ Data prior to 1987 are for cotton yarn—1967 = 100. ² Preliminary. Source: Bureau of Labor Statistics (0337-01)

T.181

Cotton Cloth¹ Production in the United States In Millions of Linear Yards

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year	Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
1982	979	961	868	987	3,794	1986	1,129	942	936	963	4,364
1983	1,068	1,052	1,032	1,040	4,192	1987	1,163	1,217	1,199	1,195	4,772
1984	1,069	1,031	947	955	4,002	1988 ²	1,233	1,208	1,048	1,029	4,518
1985	1,030	1,002	933	955	3,921	1989 ²	1,150	1,183			

¹ Cotton broadwoven goods over 12 inches in width. ² Preliminary. Source: Bureau of the Census

T.192

U.S. American Upland Cotton—Ginnings, by Staple Length In Thousands Running of Bales

Year beginning August	(¹³ / ₁₆ " 26 & under	(⁷ / ₈ " 28	(²⁹ / ₃₂ " 29	(¹⁵ / ₁₆ " 30	(³¹ / ₃₂ " 31	(1" 32	(¹¹ / ₃₂ " 33	(¹¹ / ₁₆ " 34	(¹³ / ₃₂ " 35	(¹¹ / ₈ " 36	37 & Over	All staple lengths
1982	2	16	78	412	935	676	454	985	3,509		4,362	11,430
1983	3	22	65	251	482	471	513	1,012	2,531		2,063	7,413
1984	7	45	122	414	761	719	715	1,149	2,858		5,630	12,419
1985	—	5	38	234	825	889	883	1,679	4,182	2,380	1,721	12,837
1986	—	2	13	58	226	491	1,058	1,859	3,184	2,159	186	9,237
1987 ¹	1	4	18	71	277	698	1,505	2,643	5,119	—	3,748	14,083

¹ Preliminary. Source: Agricultural Marketing Service, U.S.D.A.

T.193

Raw Cotton Equivalent of U.S. Textile Imports In Thousands of Pounds

Year	Yarn, Thread, and Woven Fabric				Primarily Manufactured Products				Grand total imports			
	Yarn	Woven Fabric—100 percent cotton	Blends	Total All	Pile fabrics and mfrs.	Bed clothes and towels	Gloves hosiery, and hdkf.	Other wearing apparel	Lace fabric and articles	Household and clothing articles	Misc. products	Floor covering
1983	40,881	274,467	64,108	380,706	7,721	70,067	25,383	597,423	5,957	11,855	28,426	7,526
1984	52,897	360,791	90,126	505,533	12,572	106,468	26,609	733,111	9,651	18,652	37,741	14,649
1985	53,818	341,896	93,569	491,874	17,916	127,494	30,052	865,476	10,372	19,681	46,197	17,984
1986	103,249	431,289	97,468	634,678	19,576	133,637	27,054	988,906	6,787	30,095	46,410	18,389
1987	131,969	559,245	82,529	776,258	20,153	152,745	31,591	1,234,040	7,113	30,758	53,153	20,657
1988	93,189	377,182	77,720	550,451	22,301	161,893	35,762	1,218,801	9,754	34,461	51,596	21,232

Source: Bureau of the Census

Raw Cotton Equivalent of U.S. Textile Exports In Thousands of Pounds

Year	Semi-Manufactured				Manufactured Products				Grand total exports			
	Yarn	Sewing thread, crochet, darning and embroidery cotton	Fabric standard constructions	Other fabric	Blankets, spreads, pillow cases, and sheets	Towels	Wearing Apparel—Knit	Other than knit	Other household and clothing articles	Floor covering	Industrial products	Total all
1983	18,854	11,577	51,667	7,747	90,636	8,725	5,705	27,957	44,113	13,736	13,986	11,601
1984	11,186	8,369	55,848	5,997	82,047	9,008	4,470	25,904	42,360	13,894	9,813	15,014
1985	16,843	8,466	74,919	5,134	105,892	9,802	3,582	25,326	30,158	11,037	8,155	16,541
1986	9,892	6,049	118,154	6,202	140,925	8,192	4,515	27,413	46,437	13,860	9,793	20,992
1987	13,491	5,207	99,536	5,643	124,803	8,516	6,224	47,823	60,584	13,189	12,142	21,673
1988	22,678	3,391	87,264	5,747	120,171	10,559	8,093	55,054	68,101	15,626	20,389	27,384

Source: Bureau of the Census

Cottonseed and Products

The level of cottonseed output depends on the amount of cotton ginned. World cottonseed output for 1989/90 was forecast at 31.3 million tonnes, down 1 million from the previous year. China continued to be the largest producer, with output projected at 7.03 million tonnes, near the 7.07 million produced the year before.

In the U.S., 1989/90 output was pegged at 4.32 million tonnes, versus 5.50 million a year earlier. USSR production was forecast at 4.8 million tonnes, versus 5.02 million in 1988/89. India and Pakistan were expected to increase production slightly.

Reduced U.S. cottonseed supplies curbed usage. The 1989/90 cottonseed crush was projected at 3.2 million short tons, down from 3.7 million in

1988/89. Direct feeding was forecast to fall to 1.95 million tons from 1.99 million.

U.S. production of cottonseed oil in 1989/90 was expected to fall by 14 percent to 1.1 billion pounds, reducing supplies to 1.22 billion pounds. Domestic use was expected to decline by 6 percent and exports by 19 percent.

The world cottonseed crush for 1989/90 was estimated at 24.3 million tonnes, down 400,000 tonnes from 1988/89. Cottonseed oil production was put at 3.47 million tonnes, down slightly from 3.62 million the previous year.

Global carryover stocks of cottonseed were likely to be reduced from 770,000 tonnes in 1988/89 to 380,000 in 1989/90.

World Production of Cottonseed In Thousands of Metric Tons

Crop Year	Argentina	Brazil	China	Egypt	Greece	India	Israel	Mexico	Pakistan	Peru	South Africa	Turkey	United States	USSR	Zimbabwe	World Total
1982-3	290	1,198	6,117	769	140	3,047	153	313	1,648	60	53	782	4,304	5,094	106	26,665
1983-4	326	995	7,883	680	190	2,647	187	377	1,021	100	68	835	2,791	3,980	150	25,248
1984-5	293	1,758	10,639	664	243	3,447	185	459	2,014	145	89	928	4,671	4,760	186	33,915
1985-6	218	1,405	7,050	695	278	3,652	160	355	2,468	167	94	810	4,789	5,100	164	30,631
1986-7	193	1,085	6,018	645	350	3,218	123	240	2,640	109	120	829	3,448	4,870	185	27,175
1987-8 ¹	400	1,550	7,217	562	270	3,202	108	370	2,946	140	170	860	5,234	4,485	195	31,242
1988-9 ²		1,220	7,070	488		3,600			2,900			1,000	5,499	5,019		32,210
1989-90 ²		1,450	7,030	562		3,810			3,080			960	4,324	4,777		31,330

¹ Preliminary. ² Estimated. Source: Foreign Agricultural Service, U.S.D.A.

T.194

Salient Statistics of Cottonseed in the United States

Yr. Begin. Aug. 1	Stocks	Production	Total Supply	Crush	Exports	Other	Total Disappearance	Farm Price \$/Ton	Value of Production Mil. \$	Oil Mil. Lbs.	Meal Ths. Sh. Tons	Linters Ths. Running Bales
			In Thousand Short Tons									
1982-3	781	4,744	5,525	3,800	12	1,342	5,154	77.0	366.2	1,134	1,588	1,029
1983-4	371	3,076	3,447	2,583	50	698	3,331	166.0	511.5	777	1,134	699
1984-5	116	5,149	5,265	3,514	60	1,285	4,859	100.0	512.0	1,174	1,732	955
1985-6	406	5,279	5,685	3,417	9	1,912	5,338	66.0	347.6	1,070	1,526	936
1986-7	347	3,801	4,148	2,520	17	1,422	3,959	80.0	304.0	781	1,112	
1987-8	189	5,769	5,958	3,396	50	2,153	5,599	83.0	478.8	1,204	1,647	
1988-9 ¹	359	6,062	6,421	3,730	39	1,987	5,756	119.0	721.4	1,250	1,690	
1989-90 ²	665	4,677	5,342	3,100	15	1,977	5,092	100.0	467.7	1,010	1,425	

¹ Preliminary ² Forecast Source: Economic Research Service, U.S.D.A.

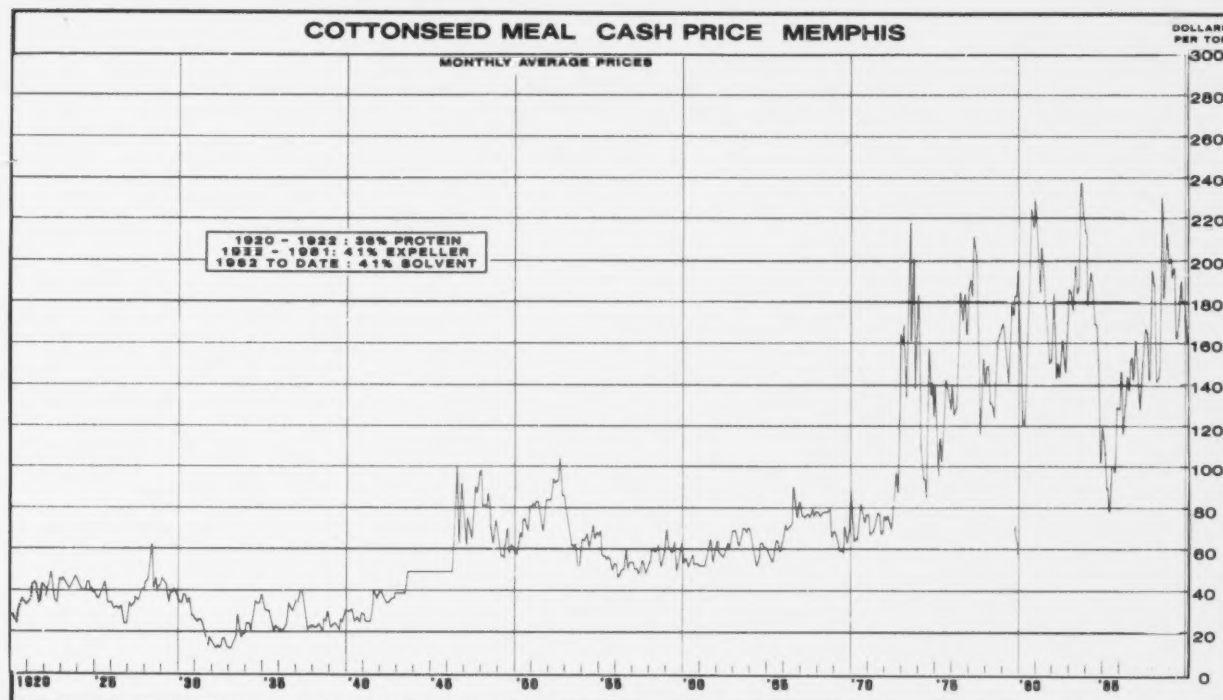
Supply & Distribution of Cottonseed Oil in the United States In Millions of Pounds

Crop Year Beginning Oct.	Imports for Consumption	Stocks Oct. 1	Total Supply	Disappearance			Per Capita Consump. of Salad & Ck. Oils - In Lbs. -	Food Uses			Utilization			
	Production			Exports	Total	Domestic		Shortening	Margarine	Salad & Cooking Oils	Other	Total	Food & Loss	Nonfood Uses
1982	1,134	2	104	1,240	546	1,150	21.8	142	31	444	16	634		
1983	777	18	90	885	303	835	23.5	143	35	366	17	562		
1984	1,174	—	50	1,224	433	1,117	19.8	156	N.A.	399	N.A.	607		
1985-6	1,070	—	107	1,177	442	1,092	23.5	202	N.A.	373	N.A.	627		
1986-7	781	11	85	877	214	787	24.1	135	36	408	14	593		
1987-8	1,240	25	90	1,355	409	1,159	25.2	164	N.A.	579	N.A.	743		
1988-9 ¹	1,250	0	160	1,410	385	1,260	25.7	195		680		875		
1989-90 ²	1,010	0	150	1,160	310	1,075								

¹ Preliminary. ² Estimate. Source: Economic Research Service, U.S.D.A.

T.201

COTTONSEED AND PRODUCTS



U.S. Consumption of Cottonseed Oil in End Products¹ In Millions of Pounds

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1984-5	42.8	55.1	63.5	54.2	58.4	59.2	52.3	64.0	50.2	45.2	43.1	35.5	623.4
1985-6	58.8	50.5	49.1	47.8	53.0	53.3	60.9	53.2	50.8	63.6	40.4	44.8	639.4
1986-7	57.3	52.7	53.0	52.0	45.6	49.6	50.9	47.8	45.1	50.0	50.5	47.9	608.7
1987-8	52.7	62.1	57.1	53.6	60.9	77.1	65.2	76.0	80.3	76.8	50.9	53.8	766.5
1988-9 ²	81.1	76.4	71.8	66.3	63.4	75.5	71.9	98.1	94.2	75.2	79.5	73.3 ³	
1989-90 ²	89.6 ³												

¹ Includes small amount exported but does not include imported oil. ² Preliminary. ³ In refining only. Source: Bureau of the Census T.206

U.S. Exports of Cottonseed Oil (Crude & Refined) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	36.4	39.9	31.8	32.9	46.5	12.8	29.9	8.8	13.1	11.0	37.1	77.3	377.5
1985	47.1	72.7	37.7	38.9	22.9	20.6	17.5	13.1	36.2	19.1	30.1	65.6	421.5
1986	21.9	39.6	32.6	52.6	59.6	27.3	25.1	46.7	13.2	9.3	20.9	25.2	374.0
1987	7.1	14.1	27.5	10.5	25.0	27.0	9.6	12.2	25.8	17.1	32.9	32.8	241.6
1988	24.4	36.6	37.1	50.4	29.9	88.5	18.5	18.6	21.8	6.7	29.1	15.4	377.0
1989 ¹	47.2	41.0	49.9	11.8	16.6	14.1	38.7	63.6					

¹ Preliminary. Source: Dept. of Commerce

T.205

Average Wholesale Price of Cottonseed Meal (41% Solvent) at Memphis In Dollars Per Short Ton

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	212.60	178.10	187.30	194.10	190.00	177.50	169.30	168.90	151.60	114.90	101.60	119.40	163.78
1985	109.75	105.60	89.10	82.75	78.10	94.40	99.75	100.00	96.90	116.50	128.75	127.82	102.45
1986	146.25	128.75	115.60	129.25	133.75	132.50	137.00	150.60	152.50	141.90	157.50	160.50	140.51
1987	146.25	138.10	128.00	133.75	149.60	154.50	166.90	163.80	141.50	150.60	177.50	195.00	157.13
1988	187.50	160.00	141.00	143.10	147.50	230.00	223.75	181.00	205.00	212.50	203.00	199.40	186.15
1989	200.50	191.25	196.25	184.40	161.50	163.30	167.50	172.00	190.00	181.25	180.00	180.00	180.66

Source: Economic Research Service, U.S.D.A.

T.196

COTTONSEED AND PRODUCTS

Cottonseed Crushed (Consumption) in the United States In Thousands of Short Tons

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1983-4	166.6	120.7	187.9	301.8	296.6	347.8	289.7	294.7	205.6	173.2	124.3	74.1	2,579
1984-5	70.2	72.6	274.3	423.1	424.2	453.4	394.5	395.3	316.2	279.5	219.6	191.3	3,514
1985-6	194.6	197.0	338.0	411.4	368.8	431.5	361.0	349.8	281.3	213.8	154.5	115.3	3,417
1986-7	141.4	167.7	208.5	262.2	283.2	323.5	278.4	255.8	214.7	171.3	134.2	78.8	2,520
1987-8	71.4	137.7	251.8	344.2	363.2	373.4	352.2	340.1	310.7	312.5	275.5	263.6	3,396
1988-9 ¹	216.8	179.5	299.3	375.3	376.7	399.7	325.4	383.3	336.6	321.7	287.0	228.9	3,730
1989-90 ¹	218.6	150.6	271.0										

¹ Preliminary. Source: Bureau of Census

T.197

Production of Cottonseed Cake and Meal in the United States In Thousands of Short Tons

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1983-4	78.8	55.3	86.7	144.5	140.9	162.4	134.7	136.2	95.1	76.7	55.9	35.8	1,203
1984-5	32.2	32.6	127.3	198.4	198.7	207.7	180.4	181.6	145.0	128.8	99.1	86.2	1,619
1985-6	87.9	90.7	153.1	187.6	169.4	199.1	166.4	159.1	128.6	97.5	71.5	51.9	1,563
1986-7	64.4	77.7	95.0	121.2	130.3	151.1	128.7	116.1	100.0	80.0	61.3	37.3	1,163
1987-8	32.2	58.3	121.7	156.9	169.3	169.4	160.2	155.7	144.0	144.0	124.7	120.6	1,557
1988-9 ¹	100.7	80.1	135.4	170.0	172.5	183.2	151.6	175.3	152.7	157.6	126.7	106.1	1,720
1989-90 ¹	98.5	69.3	122.1										

¹ Preliminary. Source: Bureau of Census

T.198

U.S. Production of Crude Cottonseed Oil In Millions of Pounds

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1983-4	54.6	37.1	58.6	94.6	93.6	109.5	91.3	96.6	69.3	55.4	40.1	24.4	825
1984-5	21.7	21.6	84.3	132.5	132.5	141.5	124.3	123.3	96.3	87.0	67.7	62.9	1,096
1985-6	60.9	60.7	105.6	129.8	117.1	136.4	115.5	112.0	93.5	69.6	50.1	37.8	1,089
1986-7	48.0	54.5	64.5	83.5	91.4	103.7	90.3	83.3	70.6	55.6	43.5	25.4	814
1987-8	22.6	46.9	84.0	118.2	124.8	125.7	115.8	113.2	104.4	105.8	91.2	91.0	1,144
1988-9 ¹	72.7	56.9	98.6	125.3	125.0	129.3	106.0	127.1	111.7	109.7	94.5	76.6	1,233
1989-90 ¹	81.9	56.8	96.8										

¹ Preliminary. Source: Bureau of Census

T.199

United States Production of Refined Cottonseed Oil In Millions of Pounds

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1983-4	55.2	39.2	54.6	91.1	97.7	99.7	98.4	100.6	89.1	71.5	43.4	30.5	871
1984-5	25.7	27.8	64.5	121.4	117.6	135.8	122.2	101.9	93.3	95.4	74.6	68.2	1,043
1985-6	55.9	57.0	87.5	117.1	112.0	119.3	109.3	112.9	95.0	63.7	54.9	42.4	1,027
1986-7	60.3	51.2	73.5	90.9	97.6	103.7	96.8	90.3	74.9	59.8	51.0	45.5	896
1987-8	45.8	56.9	71.5	110.3	120.9	119.9	117.8	132.6	116.5	119.2	103.3	109.6	1,224
1988-9 ¹	83.2	61.7	94.1	124.8	127.8	139.7	121.9	137.0	116.3	119.1	102.8	71.6	1,300
1989-90 ¹	86.6	69.1	80.7										

¹ Preliminary. Source: Bureau of Census

T.202

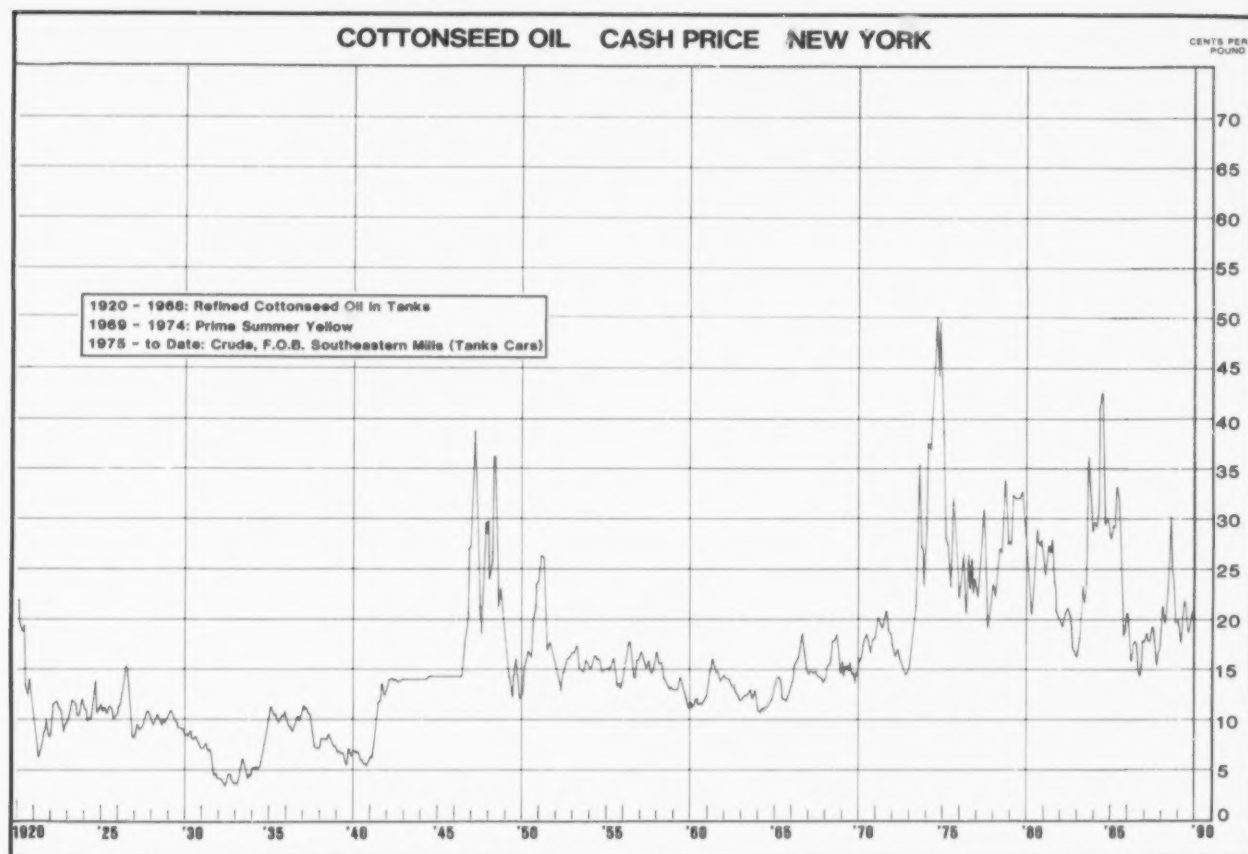
U.S. Stocks of Cottonseed Oil (Crude & Refined) at End of Month In Millions of Pounds

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1983-4	96.7	89.6	82.5	108.6	144.6	152.5	152.1	172.6	167.4	131.7	111.5	86.1	
1984-5	61.2	49.8	57.6	74.6	79.4	89.6	98.6	114.2	114.7	107.7	105.8	124.4	
1985-6	131.2	106.9	106.2	127.9	130.2	162.0	184.1	197.7	179.7	168.0	154.5	110.4	
1986-7	90.4	84.9	77.0	101.1	130.6	165.4	188.1	207.5	204.2	236.2	190.8	165.9	
1987-8	127.3	90.2	107.2	136.1	169.8	210.0	197.6	184.7	177.2	197.8	175.6	176.0	
1988-9 ¹	172.9	160.4	163.9	188.6	206.1	266.3	274.0	276.6	263.7	249.2	266.7	247.6	
1989-90 ¹	191.4	147.3	138.3										

¹ Preliminary. Source: Bureau of Census

T.203

COTTONSEED AND PRODUCTS



Average Price of Crude Cottonseed Oil, F.O.B. Southeastern Mills (Tank Cars) In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	25.3	24.2	25.3	27.3	26.7	26.6	27.9	24.6	20.7	20.5	20.4	19.8	24.1
1982	19.9	19.5	19.1	20.4	21.0	21.1	20.9	20.3	18.0	16.9	16.8	16.3	19.2
1983	16.3	17.8	18.3	21.4	23.4	21.6	23.6	33.3	36.2	31.7	29.0	28.7	25.1
1984	29.8	29.1	30.1	31.4	41.1	42.6	36.3	32.7	31.0	30.6	31.0	29.3	32.9
1985	27.4	30.1	30.2	32.3	33.3	32.6	29.1	23.8	20.7	18.3	18.9	20.6	26.4
1986	19.9	17.6	15.8	17.5	17.7	17.9	17.6	15.1	14.3	15.4	17.4	17.7	17.0
1987	18.38	18.56	17.85	17.88	18.94	19.25	19.00	16.70	15.44	16.75	17.00	18.35	17.84
1988	21.31	20.19	19.60	21.00	22.88	26.65	30.25	15.00	23.00	21.44	19.70	19.94	22.58
1989	19.19	17.56	20.25	21.06	21.80	20.25	19.63	18.60	19.75				

Source: Economic Research Service, U.S.D.A.

T.204

U.S. Exports of Cottonseed Oil to Important Countries In Thousands of Metric Tons

Yr. Beg. Oct. 1	Canada	Costa Rica	Dom. Rep.	Egypt	W. Ger- many	Guat- emala	India	Salv- ador	Japan	Rep. of Korea	Nether- lands	South Africa	Mex- ico	United Kingdom	Venez- uela	Total
1982-3	4.3	.5	6.6	66.3	3.3	15.3	0	14.1	34.6	2.5	5.1	1.2		1.5	73.8	247.5
1983-4	3.5	0	4.5	31.2	7.9	1.1	—	5.3	16.7	2.9	2.1	1.8	.2	3.0	55.4	137.4
1984-5	3.3	1.0	3.9	55.9	—	9.8	—	15.6	22.8	1.8	5.8	2.0	.1	1.5	70.0	196.2
1985-6	2.7	—	5.9	37.8	4.9	11.1	—	29.7	26.3	4.5	8.0	1.6	9.5	.5	48.6	200.7
1986-7	2.9	—	1.9	0	.1	2.2	—	10.9	17.9	5.8	5.0	.5	3.1	0	44.6	97.7
1987-8	4.6	—	6.3	31.5	.1	1.2	—	31.0	21.6	11.5	1.6	0	7.3	—	51.3	185.3
1988-9 ¹	5.6	—	—	32.9	.1	5.5	—	22.6	29.4	20.4	4.2	.1	2.8	—	55.0	184.4

¹ Preliminary. Source: U.S. Bureau of the Census

T.202A

CRB Futures Index

The CRB Futures Price Index, an indicator which reflects prices in 21 commodity markets, declined by 9 percent in 1989. Losses in the imported (softs) group, grains, oilseeds, and precious metals explained the drop (see page 5T). A rise in the live-stock group blunted the decline in the overall index. The industrials group was unchanged on the year.

Prices of futures on the CRB Index closely tracked the cash index throughout the year. The contract began trading on the New York Futures Exchange (NYFE) in 1986. The CRB Index futures

contract has made it possible to trade broad commodity price moves with a single position.

In mid-1988, the CRB Futures Index reached a 4-year high of 270.5, as drought in North America sent futures prices of grains, oilseeds, and other commodities sharply higher.

Futures Market

Futures and options on the CRB Index are traded on the NYFE.



Month-End Open Interest of CRB Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1986	Futures Trading Began June 12					665	678	1,191	996	1,226	1,825	2,439
1987	2,831	2,710	2,349	2,850	3,197	5,628	5,739	5,453	4,136	3,831	4,403	2,497
1988	3,061	2,805	2,598	2,786	3,448	3,595	2,449	2,954	2,502	2,320	2,658	2,431
1989	2,962	3,107	2,303	2,221	1,963	2,024	1,959	1,964	2,015	1,809	2,611	2,592

Source: N.Y. Futures Exchange

Volume of Trading of CRB Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1986	Futures Trading Began June 12					10,742	9,019	8,821	8,343	5,375	8,182	8,842	59,324
1987	3,360	7,143	8,261	10,313	15,510	16,993	13,271	13,107	9,237	14,744	13,205	11,688	136,832
1988	9,557	10,726	13,841	9,480	20,299	43,591	31,043	22,020	15,615	9,044	9,691	11,044	205,951
1989	8,805	10,045	12,035	11,437	13,145	13,824	11,917	9,846	7,918	7,412	9,613	8,551	124,548

Source: N.Y. Futures Exchange

Currencies

The U.S. Dollar Index on the FINEX (Financial Instrument Exchange) ended 1989 at 93.3 percent of its 1973 base, up 0.9 percent from its 1988 close. The currency markets were not as calm as the close implied, despite continued attempts by the Group of 7 (G-7) central banks to keep the dollar within its price bands, which at the start of 1989 were thought to be 120 to 140 yen and 1.7 to 1.9 Deutsche marks.

The G-7 consists of the U.S., Canada, Japan, West Germany, France, Italy and the U.K. The Dollar Index mirrors the Federal Reserve Board's trade-weighted dollar index, except that it is updated continuously and uses bids and offers in its valuation. The Fed's index uses bids only and is released at the end of each business day. The ten currencies and their percentages in each index are: the Deutsche mark, 20.8; yen, 13.6; French franc, 13.1; pound sterling, 11.9; Canadian dollar, 9.1; lira, 9.0; Dutch guilder, 8.3; Belgian franc, 6.4; Swedish krona, 4.2; and Swiss franc, 3.6.

The dollar began 1989 with an advance spurred by statements implying that the G-7 would let the dollar rise, by strong commercial demand, and by Japanese and West German interest in U.S. securities. Despite higher European interest rates and coordinated intervention (including the Fed's sale of \$1.88 billion for marks between January 6 and January 27), the dollar ended January 1989 at 1.8713 marks (53.44 cents in American terms) and at 128.52 yen, compared with its December 1988 closes at 1.7737 marks and 124.98 yen.

The dollar then consolidated its gains and worked higher, ignoring rising interest rates overseas, fears that the U.S. economy was weakening, and continued intervention. In May, as tensions mounted in China, the dollar benefited from its role as a safe haven. Aided by a lower U.S. trade deficit, the greenback reached 2.00 Deutsche marks on May 22 and 142.85 yen on May 24, despite the Fed's sale of \$2 billion between May 18 and May 19. (For all of 1989, the Fed said its interventions totaled about \$20 billion.)

Central bank selling briefly stopped the dollar in early June. However, the Tiananmen Square massacre and capital flight from Hong Kong sent the dollar sharply higher on June 5. The Canadian dollar also gained because an investment of C\$250,000 in Canada would entitle a Hong Kong resident to a

Canadian visa.

On June 15, the dollar peaked at 2.0470 marks and 151.90 yen, up 31 percent and 26 percent, respectively, from its January 4, 1988, record lows against those currencies. Profit-taking set in, and central bank intervention ahead of the Bastille Day meeting of the G-7 heads of state in Paris kept the dollar below its G-7 ceilings and on the defensive into August.

The dollar then advanced with some improvement in the U.S. economy. After the September 15 report that the July U.S. trade deficit had narrowed to \$7.58 billion, the dollar came within striking distance of June's highs. But the September 22 G-7 meeting in Washington reversed the gains. After the meeting, the G-7 issued a statement that the dollar's strength was not fundamentally justified and that it threatened the health of the world economy.

The pound sterling depreciated in 1989 because of the U.K.'s political and economic problems, including short-term interest rates of 15 percent. When Chancellor of the Exchequer Nigel Lawson resigned on October 26 over a policy dispute with Prime Minister Thatcher's economic advisor, sterling fell to \$1.5710 from \$1.6125. Despite scant progress in reducing inflation or reviving the U.K. economy, sterling recovered against the dollar to close the year at \$1.6140. That was, however, down 11 percent from a year earlier.

The Deutsche mark was the strongest currency during the fourth quarter, attracting cash from around the world, as the Warsaw Pact dissolved and the Berlin Wall became history. While the ramifications of a reunited Germany were far from discernible as 1989 ended, the mark closed at 1.6898 (59.18 cents), up 5 percent against the dollar on the year.

Futures Markets

The Chicago Mercantile Exchange's International Monetary Market trades futures and options on futures on the British pound, Swiss franc, Deutsche mark, Japanese yen, and the Australian and Canadian dollars. The FINEX division of the New York Cotton Exchange trades futures and options on the Dollar Index. Cash currency options are traded on the Philadelphia Stock Exchange.

Monthly Close of the CRB Currency Futures Index 1977 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	118.7	115.2	116.3	112.9	109.3	107.2	103.1	104.2	106.4	109.8	112.7	111.6
1982	109.4	105.6	104.7	106.6	104.0	99.7	100.2	93.9	97.7	96.2	98.8	102.4
1983	99.4	98.8	98.8	99.8	99.0	98.5	96.8	95.7	97.4	97.1	96.3	96.2
1984	93.9	97.1	97.7	95.1	94.1	92.2	88.8	89.8	86.2	86.5	84.3	83.1
1985	81.6	78.0	84.2	83.4	84.8	85.5	91.4	90.3	93.9	95.9	98.7	98.8
1986	99.5	103.9	103.3	108.5	104.3	109.6	112.4	113.2	112.3	109.2	112.0	114.4
1987	118.5	119.5	123.3	125.7	123.4	122.9	120.6	123.8	122.6	128.7	134.8	141.3
1988	134.0	133.6	138.3	137.0	134.5	129.2	127.1	125.1	126.7	131.3	136.3	133.7
1989	128.2	130.0	126.0	125.5	119.3	120.2	125.2	119.7	123.6	122.6	123.9	126.1

Source: Commodity Research Bureau.

CURRENCIES



CURRENCIES



CURRENCIES



Canadian Dollars per U.S. Dollar

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	1.248	1.248	1.269	1.279	1.294	1.304	1.323	1.303	1.314	1.318	1.316	1.320	1.295
1985	1.324	1.354	1.383	1.364	1.375	1.367	1.352	1.357	1.369	1.366	1.376	1.395	1.365
1986	1.407	1.404	1.400	1.387	1.375	1.389	1.380	1.388	1.387	1.388	1.387	1.379	1.389
1987	1.360	1.334	1.319	1.319	1.341	1.338	1.326	1.325	1.315	1.309	1.316	1.307	1.326
1988	1.284	1.268	1.249	1.235	1.237	1.217	1.208	1.224	1.227	1.206	1.218	1.196	1.230
1989	1.191	1.189	1.195	1.189	1.193	1.199	1.189	1.176					

Source: Economic Research Service, U.S.D.A.

T.0581

German Marks per U.S. Dollar

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	2.810	2.698	2.596	2.647	2.746	2.738	2.848	2.882	3.028	3.066	2.997	3.102	2.846
1985	3.169	3.300	3.296	3.087	3.103	3.062	2.906	2.792	2.836	2.643	2.594	2.511	2.942
1986	2.437	2.330	2.276	2.268	2.226	2.232	2.148	2.060	2.040	2.005	2.023	1.988	2.169
1987	1.858	1.823	1.834	1.810	1.787	1.819	1.848	1.855	1.812	1.798	1.682	1.634	1.797
1988	1.654	1.697	1.676	1.671	1.693	1.757	1.846	1.888	1.867	1.817	1.748	1.756	1.755
1989	1.836	1.851	1.869	1.869	1.946	1.979	1.889	1.927					

Source: Economic Research Service, U.S.D.A.

T.0582

Japanese Yen per U.S. Dollar

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	233.7	233.5	225.2	225.2	230.4	233.4	243.0	242.0	245.3	246.7	243.5	247.8	237.5
1985	254.1	260.2	257.8	251.5	251.6	248.8	241.1	237.3	236.2	214.6	203.8	202.7	238.3
1986	199.8	184.8	178.6	174.7	166.9	167.4	158.1	154.1	154.6	156.4	162.8	162.2	168.4
1987	154.7	153.3	151.3	142.8	140.4	144.5	150.3	147.3	143.2	143.1	135.4	128.3	144.6
1988	127.6	129.1	127.0	124.9	124.7	127.4	133.0	133.8	134.3	128.7	123.2	123.6	128.1
1989	127.4	127.7	130.6	132.0	137.9	144.0	140.4	141.4					

Source: Economic Research Service, U.S.D.A.

T.0583

CURRENCIES

British Pound Per U.S. Dollar

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	.7102	.6931	.6864	.7036	.7190	.7257	.7572	.7608	.7954	.8197	.8066	.8428	.7517
1985	.8861	.9141	.8903	.8066	.8001	.7817	.7241	.7226	.7329	.7031	.6946	.6919	.7790
1986	.7014	.6999	.6809	.6671	.6564	.6625	.6631	.6726	.6809	.7006	.7017	.6945	.6818
1987	.6641	.6541	.6278	.6128	.6000	.6139	.6213	.6249	.6077	.6007	.5634	.5471	.6115
1988	.5553	.5689	.5453	.5325	.5346	.5628	.5862	.5889	.5938	.5751	.5528	.5477	.5619
1989	.5368	.5703	.5836	.5880	.6132	.6439	.6142	.6271					

Source: Economic Research Service, U.S.D.A.

T.0590

Month-End Open Interest of British Pound Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	20,972	27,563	17,939	20,035	17,876	13,072	15,710	15,105	15,473	18,921	21,701	15,624
1985	22,230	23,911	29,487	31,486	50,437	38,496	46,123	41,685	24,982	28,699	35,562	25,082
1986	38,235	40,880	28,187	39,520	30,584	24,702	26,211	27,788	37,506	36,992	34,127	23,145
1987	27,615	41,391	37,799	40,247	42,731	33,006	39,754	43,281	26,290	41,563	46,132	28,593
1988	36,094	43,301	45,691	42,376	45,172	16,530	16,199	19,574	12,790	19,073	28,514	16,277
1989	24,733	25,427	21,413	18,096	27,640	23,390	26,345	21,958	24,441	22,915	23,429	19,835

Source: International Monetary Market (Chicago)

T.0584

Month-End Open Interest of Canadian Dollar Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	5,624	5,607	9,572	12,306	10,484	7,684	8,244	8,197	6,397	7,737	10,641	7,775
1985	9,248	12,208	11,132	10,503	12,479	8,145	8,817	9,461	4,771	4,801	8,516	13,929
1986	18,922	15,075	9,748	13,670	14,977	9,400	13,739	17,501	9,358	12,377	14,648	14,937
1987	23,106	24,837	27,963	24,537	25,406	19,674	19,033	23,449	21,422	19,138	19,321	14,908
1988	25,446	23,411	24,339	25,940	29,846	33,848	30,069	28,513	17,849	23,452	28,227	21,974
1989	29,437	30,683	19,631	22,867	29,282	17,987	22,257	34,598	20,315	26,267	30,846	23,526

Source: International Monetary Market (Chicago)

T.0585

Month-End Open Interest of Deutschmark Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	24,830	38,569	37,871	33,228	34,665	25,166	29,713	34,871	37,068	42,785	44,888	33,746
1985	49,483	45,759	48,190	47,318	52,909	50,400	56,977	54,966	42,696	50,796	57,347	53,525
1986	56,622	70,411	53,054	58,819	58,486	38,698	50,631	57,849	45,708	47,807	58,346	44,292
1987	60,164	57,902	41,702	46,932	52,082	32,140	42,132	48,534	31,167	43,385	59,808	32,536
1988	36,616	47,177	35,369	40,603	66,274	47,134	52,040	63,215	36,267	52,715	56,077	35,504
1989	60,485	69,499	42,522	50,707	77,298	50,042	66,181	74,899	55,318	84,374	109,116	58,073

Source: International Monetary Market (Chicago)

T.0586

Month-End Open Interest of Japanese Yen Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	28,988	34,456	42,730	30,390	28,035	16,121	18,197	20,172	15,431	21,592	19,828	13,542
1985	13,755	16,206	21,333	17,893	18,251	22,258	37,861	35,896	32,581	37,658	39,605	28,058
1986	31,732	33,792	31,305	38,348	38,363	37,443	47,528	49,571	30,463	43,062	41,052	23,172
1987	32,164	31,988	43,282	47,410	51,681	27,969	38,334	52,905	37,058	46,297	60,299	42,656
1988	54,303	61,820	53,572	43,499	49,763	42,550	49,262	63,746	31,690	48,882	55,538	32,647
1989	52,064	50,738	51,867	52,005	75,508	44,031	56,683	73,355	52,052	55,646	66,167	49,960

Source: International Monetary Market (Chicago)

T.0587

Month-End Open Interest of Swiss Franc Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	23,067	30,948	25,407	25,118	25,548	18,402	19,093	21,229	18,812	21,485	23,562	17,861
1985	24,406	28,898	22,446	27,144	32,175	27,891	34,160	35,850	25,988	28,190	35,047	27,351
1986	29,412	39,151	28,521	34,855	30,766	32,254	35,466	44,717	26,619	32,621	34,495	23,138
1987	33,581	36,210	29,102	31,854	33,551	24,351	29,387	31,898	33,328	29,809	40,772	24,298
1988	28,279	32,494	24,835	27,511	41,433	25,519	29,120	35,550	20,240	34,238	37,544	21,478
1989	30,853	31,709	36,992	34,448	43,712	26,467	39,847	45,426	29,473	39,110	50,125	32,418

Source: International Monetary Market (Chicago)

T.0588



United States Merchandise Trade Balance In Millions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	-11,408	-8,095	-8,960	-10,588	-10,387	-12,068	-10,447	-9,846	-14,559	-10,561	-12,267	-13,311	-126,461
1986	-12,166	-9,027	-9,961	-11,618	-10,706	-10,212	-13,056	-12,157	-13,144	-12,470	-13,140	-10,623	-138,279
1987	-13,453	-10,956	-10,628	-11,613	-12,410	-13,721	-14,431	-13,747	-12,484	-15,298	-11,932	-11,445	-152,119
1988 ¹	-9,874	-11,179	-7,656	-8,233	-7,915	-11,738	-10,211	-11,006	-9,237	-10,251	-10,824	-10,402	-118,526
1989 ¹	-8,738	-8,724	-7,016	-6,818	-9,625	-8,957	-10,730	-10,904	-8,597	-11,498	-10,770		

¹ Preliminary. Source: Bureau of the Census

Index of Real Trade-Weighted Dollar Exchange Rates for Total Agriculture² 1985 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1988 U.S. Markets	76.4	76.8	75.8	74.8	74.9	76.0	77.8	78.3	79.3	77.8	75.7	75.6
U.S. Competitors	83.1	83.4	82.6	81.9	81.8	82.2	83.2	84.2	84.4	83.5	82.1	81.9
1989 U.S. Markets	77.2	77.5	79.4	79.1	81.0	82.2	80.6	82.0	82.5	80.8	80.7	79.6
U.S. Competitors	82.1	81.4	81.9	85.0	88.7	88.8	87.6	86.3	85.9	84.8	84.4	83.3
1990 U.S. Markets	79.3											
U.S. Competitors	82.8											

¹ Preliminary. ² Real indexes adjust nominal exchange rates for differences in rates of inflation, to avoid the distortion caused by high-inflation countries. A higher value means the dollar has appreciated. Federal Reserve Board Index of trade-weighted value of the U.S. dollar against 10 major currencies. Weights are based on relative importance in world financial markets. Source: Economic Research Service, U.S.D.A. T.0589

Eggs

The Soviet Union was the largest egg producer in 1989, with about 22 percent of world output, followed by the EC with 21 percent, and the U.S. with 17 percent. Total world egg output was expected to be 2 percent below a year earlier, and was forecast to be slightly higher in 1990.

U.S. egg production in 1989 was estimated to fall 3 percent below a year earlier, as producers responded to lower net returns in 1987 and 1988. Higher prices and lower feed costs resulted in positive 1989 net returns, estimated at an average 15 cents per dozen eggs. For the first time in thirteen years, U.S. egg producers in 1989 showed positive net returns for all four quarters. The higher returns were expected to lead to 1990 production increases of about 2 percent to 5.7 billion dozen.

U.S. per capita consumption of eggs in 1989 was estimated at 235, below 1988's level of around 244. Concerns regarding cholesterol and salmonella combined with demographic patterns to reduce table egg consumption. The drop in demand is a trend that has been in place since the end of World War II. U.S. consumption of eggs was expected to hold steady in 1990, however. Testing of grade A eggs indicated an average cholesterol content of around 213 milligrams, below the 1976 estimate of 274 milligrams. The lower content was due to newer testing methods and new ways of managing and

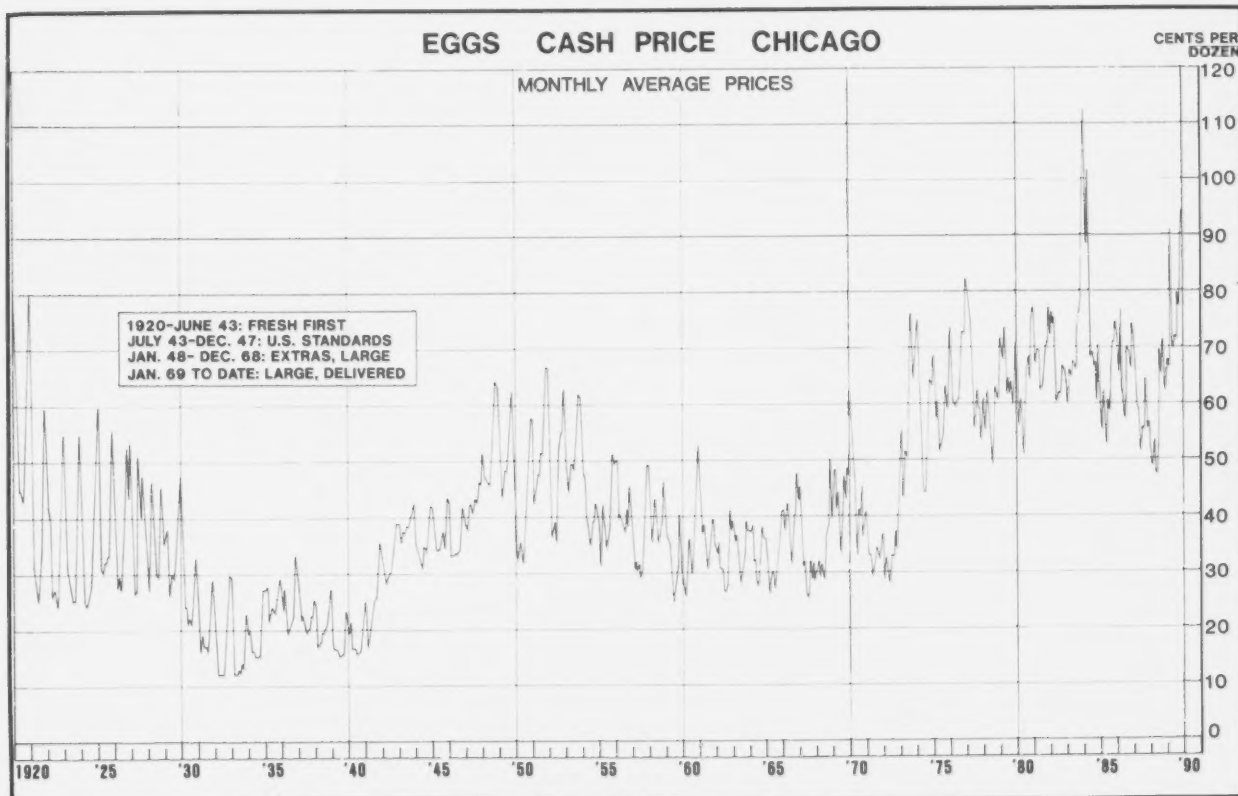
feeding laying hens.

Eggs used for processing accounted for about 20 percent of U.S. table egg production. The three major types of egg products are liquid, frozen, and dried. Egg products go into cakes, ice cream, and pasta and, to a much lesser extent, to non-food items, such as shampoo and pharmaceuticals.

Higher U.S. egg prices led to 1989 exports that were 30 percent below year-earlier levels. Exports to Japan, Hong Kong, and Iraq all declined, while shipments to Canada, Mexico, and the Caribbean increased. U.S. egg exports, particularly of products, were less price competitive with EC eggs. Japan was the largest foreign market for U.S. eggs in 1989, though exports to that country were less than half the 1988 level. Lower prices in 1990 were expected to make U.S. eggs more competitive and to boost U.S. exports by about five percent.

U.S. imports of eggs were relatively strong in 1989, totaling about 28 million dozen, the highest since 1984. The majority of imports went to processors looking for lower prices than could be found domestically.

Wholesale prices averaged 82 cents per dozen eggs in 1989, up sharply from 1988's 62 cents. Prices were expected to be lower in 1990, particularly in the second half of the year, as a result of increasing supplies.



World Production² of Eggs In Billions of Eggs

Year	Argentina	Australia	Bel. & Lux.	Brazil	Canada	Israel	France	West Germany	Italy	Japan	Netherlands	Poland	Spain	South Africa	USSR	United Kingdom ³	United States
1981	3.3	3.6	3.3	10.2	5.9	1.4	15.2	13.2	11.4	33.3	9.8	8.8	11.8	2.6	70.9	13.7	69.9
1982	3.2	3.4	3.3	10.2	5.9	1.8	15.9	13.1	11.2	34.3	10.7	7.6	12.4	3.1	72.4	13.5	69.6
1983	3.3	3.5	3.2	10.0	6.1	1.8	15.0	13.0	10.9	34.8	10.7	7.6	12.2	3.3	75.1	13.2	67.9
1984	3.2	3.5	3.1	9.5	5.9	2.1	14.9	13.2	10.8	35.5	11.1	8.2	10.1	3.3	76.5	13.0	68.5
1985	3.2	3.3	3.0	11.8	5.9	2.1	14.9	12.8	10.9	35.7	11.1	8.6	10.2	3.2	77.3	13.1	68.3
1986	3.2	3.2	2.9	13.0	5.9	1.8	15.0	12.3	10.3	37.1	10.9	8.3	10.9	3.2	79.9	13.2	68.5
1987	3.3	3.2	2.9	15.4	5.7	1.7	14.5	12.3	10.7	39.6	10.9	8.0	10.5	3.4	81.9	13.3	69.6
1988 ¹	3.3	3.2	2.8	14.9	5.7	1.9	15.3	12.1	11.2	40.1	10.8	8.1	10.9	3.7	84.1	13.5	69.3
1989 ⁴	3.2	3.3	2.8	13.7	5.5	1.8	15.1	12.2	11.4	40.0	10.7	8.0	10.6	3.9	86.0	12.0	67.8

¹ Preliminary. ² Relates to farm production in Canada and the United States. Information for many countries is not explicit on this point. ³ Farm production, years ending May. ⁴ Estimate. Source: Foreign Agricultural Service, U.S.D.A. T.210

Salient Egg Statistics in the United States

Year	Hens & Pullets		Rate of Lay Per Layer During Year Number	Eggs				Gross Income ⁵ Billion \$	Total Egg Pro- duction ⁶	Imports ⁷	Exports ⁸ and Shipments Million Dozen	Used for Hatching	Civilian Consumption	
	On Farms Dec. 1 ²	Avg. Number During Year		Total Pro- duced	Price (in ¢) Per Dozen	Consumed ⁴ on Farms	Sold						Total	Per Capita Eggs (Number)
	Millions					Billions								
1981	293.8	287.8	243	69.8	63.1	.44	69.38	3.67	5,825	5	234	589	5,090	265.4
1982	289.6	286.4	243	69.7	59.5	.43	69.27	3.46	5,802	3	158	506	5,138	265.2
1983	278.5	276.3	247	68.2	61.1	.42	67.75	3.47	5,659	23	86	500	5,108	261.1
1984	285.8	278.0	245	68.2	72.3	.39	67.80	4.11	5,709	32	58	530	5,151	260.8
1985	279.8	276.7	247	68.3	57.1	—	N.A. —	3.25	5,710	13	71	548	5,104	256.0
1986	279.9	276.9	248	68.5	61.6			3.51	5,766	14	102	567	5,112	253.9
1987	288.3	280.0	248	70.4	62.5			3.18	5,865	6	111	599	5,156	253.8
1988 ¹⁰	275.4	277.0	251	69.4	63.9			3.06	5,772	5	142	606	5,030	245.0
1989 ¹⁰	269.0	269.0	250	67.0	85.1				5,570	23	94	640	5,200	236.0

¹ Preliminary. ² Of laying age. ³ Number of eggs produced during the year divided by the average number of hens & pullets of laying age on hand during the year. ⁴ Consumed in households of farm producers. ⁵ Value of sales plus value of eggs consumed in households of producers. ⁶ Farm production, plus nonfarm output estimated at 1 percentage point less each year. ⁷ Shell-egg equivalent of eggs and egg products. ⁸ Shell eggs & shell equivalent of frozen & dried egg products. ⁹ Average number of layers on farms during the year. ¹⁰ Estimate. Source: Agricultural Marketing Service, U.S.D.A. T.211

Average Wholesale Prices of Shell Eggs (Large) Delivered, Chicago In Cents Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	71.4	67.2	66.6	69.7	62.2	62.9	67.5	68.7	70.7	71.3	77.3	72.1	69.0
1982	76.2	74.2	75.2	68.3	60.4	60.8	61.7	61.6	65.9	66.8	66.2	64.1	66.8
1983	60.2	62.7	66.2	64.9	68.4	68.0	66.2	74.4	76.2	77.9	88.4	98.6	72.7
1984	112.3	102.6	88.3	101.8	74.3	68.1	69.0	66.5	67.2	60.7	70.4	62.2	78.6
1985	58.4	55.1	62.3	57.3	52.9	60.8	58.6	66.4	70.5	70.7	74.6	73.2	63.4
1986	70.6	65.7	76.9	62.6	62.0	57.3	69.4	70.0	69.4	66.3	74.1	72.8	68.1
1987 ¹	64.4	62.0	59.2	59.0	51.8	55.6	55.4	58.7	64.8	55.5	56.3	52.1	57.9
1988 ¹	51.2	48.9	53.6	47.9	47.1	52.8	69.8	65.4	71.4	63.1	62.2	66.1	58.3
1989 ¹	67.8	66.6	91.0	71.6	69.8	72.0	71.8	79.6	77.2	79.4	89.1	94.3	77.5

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.212

Total Egg Production in the United States In Millions of Eggs

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total ²
1981	6,020	5,421	6,009	5,761	5,855	5,608	5,799	5,835	5,685	5,919	5,859	6,079	69,825
1982	5,958	5,333	—	17,557	—	—	17,231	—	—	17,419	—	6,030	69,718
1983	5,931	5,354	5,928	5,622	5,711	5,526	5,666	5,639	5,493	5,699	5,570	5,772	68,169
1984	5,685	5,326	5,796	5,643	5,742	5,525	5,750	5,766	5,622	5,856	5,747	6,040	68,230
1985	5,950	5,293	5,923	5,670	5,721	5,499	5,661	5,686	5,545	5,761	5,658	5,889	68,256
1986	5,856	5,292	5,899	5,641	5,779	5,593	5,689	5,701	5,536	5,793	5,730	6,022	68,531
1987	5,989	5,417	6,093	5,864	5,925	5,685	5,863	5,861	5,756	6,008	5,873	6,084	70,418
1988 ¹	6,047	5,667	6,050	5,767	5,839	5,575	5,740	5,762	5,589	5,838	5,697	5,831	69,402
1989 ¹	5,734	5,161	5,764	5,557	5,684	5,488	5,633	5,598	5,439	5,648	5,556	5,760	67,022

¹ Preliminary. ² Dec. 1 previous year thru Nov. 30. Source: Crop Reporting Board, U.S.D.A.

T.219

EGGS

Total Eggs—U.S. Supply and Distribution In Millions of Dozen

Year & Quarters	Supply					Utilization				
	Production	Imports ¹	Beginning Stocks ¹	Total Supply	Ending Stocks ¹	Exports & Shipments ¹	Eggs Used for Hatching	Domestic Disappearance		
								Military	Civilian ¹	Per Capita (Number)
								Total		
1984 I	1,401	13.9	9.3	1,414	10.2	17.5	133.0	4.2	1,259	64.6
II	1,409	7.6	10.2	1,413	13.7	15.3	138.0	5.3	1,255	64.2
III	1,428	7.2	13.7	1,436	13.4	26.7	128.4	3.7	1,277	65.2
IV	1,470	3.4	13.4	1,476	11.1	26.5	130.2	4.4	1,315	66.9
1985 I	1,431	2.2	11.1	1,444	11.0	24.6	136.1	5.1	1,272	64.0
II	1,408	3.3	11.0	1,422	12.2	24.5	139.7	5.6	1,245	62.6
III	1,408	2.3	12.2	1,422	13.1	25.1	133.7	4.5	1,250	62.7
IV	1,442	4.9	13.1	1,460	10.7	27.0	138.6	5.0	1,284	64.2
1986 I	1,421	3.6	10.7	1,435	8.7	33.5	139.2	4.6	1,254	62.5
II	1,418	4.0	8.7	1,431	11.9	28.2	145.1	4.2	1,245	62.0
III	1,411	2.2	11.9	1,425	11.5	36.5	141.4	4.5	1,235	61.3
IV	1,456	3.9	11.5	1,471	10.4	31.4	141.2	4.2	1,288	63.8
1987 I	1,458	2.6	10.4	1,471	11.9	30.9	147.6	4.5	1,288	63.6
II	1,456	1.2	11.9	1,469	13.8	28.5	154.9	4.1	1,277	62.9
III	1,457	1.0	13.8	1,472	13.5	27.6	149.2	4.6	1,287	63.2
IV	1,494	.8	13.5	1,508	14.4	49.3	147.4		1,304	63.9
1988 ² I	1,476	.9	14.4	1,492	11.7	39.7	150.2		1,296	63.4
II	1,428	.7	11.7	1,441	20.1	40.5	153.8		1,233	60.1
III	1,421	2.1	20.1	1,443	17.6	39.8	150.5		1,241	60.4
IV	1,446	1.6	17.6	1,466	15.2	47.1	150.0		1,260	61.1
1989 ² I	1,391	1.9	15.2	1,408	11.7	30.2	155.1		1,218	59.0
II	1,394	8.2	11.7	1,414	12.2	27.7	164.8		1,216	58.7
III	1,387	10.4	12.2	1,410	11.6		161.2		1,214	58.5
IV			11.6							

¹ Shell eggs & the approx. shell-egg equivalent of egg product. ² Preliminary. Source: Economic Research Service, U.S.D.A.

T.213

Shell Eggs: Civilian Per Capita Disappearance in the United States Number of Eggs

Year	Shell Equivalent												Total ¹	Processed ²	Total
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.			
1979	21.3	18.5	21.0	20.0	20.1	19.2	20.1	19.9	19.8	20.2	20.2	21.8	242	36	278
1980	21.1	19.0	20.9	19.4	19.8	18.7	19.0	19.6	19.4	19.8	20.0	20.7	237.3	35	272
1981	—	58.5	—	—	56.7	—	—	57.3	—	—	60.7	—	233.1	33	265
1982	—	58.6	—	—	57.0	—	—	56.5	—	—	59.1	—	231.2	34	265
1983	—	57.8	—	—	55.5	—	—	55.0	—	—	57.6	—	225.9	35	261
1984	—	55.7	—	—	54.8	—	—	55.2	—	—	57.7	—	223.4	38	261
1985	—	55.3	—	—	52.2	—	—	52.5	—	—	54.7	—	214.6	38	253
1986	—	54.0	—	—	51.5	—	—	51.2	—	—	53.8	—	210.5	39	250
1987	—	53.3	—	—	52.0	—	—	51.9	—	—	53.3	—	210.5	43	254
1988 ³	—	52.8	—	—	48.9	—	—	49.8	—	—	50.4	—	201.0	44	245
1989 ³	—	48.8	—	—	46.8	—	—	47.0	—	—	—	—	—	—	—

¹ Monthly totals do not necessarily add to yearly figures due to rounding. ² Liquid, frozen, & dried egg (egg solids) converted to shell egg equivalent. ³ Preliminary. Source: Economic Research Service, U.S.D.A.

T.214

Egg-Feed Ratio¹ in the United States

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average	
1979	7.8	7.7	8.0	7.4	6.9	6.7	6.1	6.1	6.4	6.1	6.8	7.3	6.9	
1980	6.6	6.0	6.4	6.0	5.4	5.6	5.7	6.0	6.2	5.7	6.0	6.6	6.0	
1981	5.9	5.7	5.6	5.9	5.2	5.2	5.5	5.8	6.4	6.5	7.2	6.7	6.0	
1982	6.6	6.8	7.1	6.6	5.6	5.3	5.7	5.4	6.0	6.3	6.3	6.0	6.2	
1983	5.7	5.8	6.1	5.8	6.0	5.8	5.7	6.1	6.0	6.2	6.9	7.7	6.0	
1984	8.8	8.5	7.4	8.6	6.5	5.8	5.8	5.8	5.9	5.7	6.5	6.3	6.8	
1985	5.4	5.6	6.3	5.7	5.5	5.9	5.8	6.5	7.1	7.3	7.5	7.4	6.3	
1986 ²	7.2	6.9	7.6	6.4	6.4	5.7	6.9	7.3	7.3	7.0	8.0	7.9	7.0	
1987 ²	7.2	7.1	6.6	6.6	5.9	6.0	5.7	5.6	6.5	6.0	6.4	5.8	7.6	
1988 ²	5.6	5.3	5.2	5.2	5.0	5.5	4.9	4.9	5.4	5.3	5.4	5.4	5.3	
1989 ²	5.9	5.8	7.5	6.2	5.9	6.0	6.1	6.8	6.8	7.1	—	—	—	

¹ Pounds of laying feed equivalent in value to one dozen eggs. ² Preliminary. Source: Economic Research Service, U.S.D.A.

T.215

Hens and Pullets of Laying Age (Layers) in the U.S., First of Month In Millions

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1983	285.8	283.3	280.5	276.9	273.0	271.8	270.1	269.7	271.5	272.2	276.4	278.5
1984	277.2	276.5	277.0	278.9	276.1	276.2	276.5	274.3	277.8	280.5	282.2	285.8
1985	286.9	281.7	279.0	276.2	272.6	269.1	269.7	271.2	273.8	276.0	280.9	279.8
1986	280.2	279.5	279.2	277.3	275.0	272.9	270.7	272.3	272.6	275.8	279.3	279.9
1987	282.7	283.8	282.6	282.4	279.0	277.3	275.5	277.1	278.8	282.6	282.9	288.3
1988 ¹	286.5	285.7	283.2	279.2	277.4	272.5	270.3	271.2	273.1	275.2	276.4	275.4
1989 ¹	271.6	272.0	270.8	268.6	266.8	266.6	266.5	265.6	266.8	267.7	269.4	269.0

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.216

Eggs Laid Per Hundred Layers in the United States In Number of Eggs

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	2,084	1,899	2,127	2,045	2,096	2,039	2,099	2,084	2,021	2,078	2,008	2,078	2,468
1984	2,054	1,925	2,085	2,032	2,079	1,999	2,086	2,088	2,013	2,080	2,023	2,109	2,046
1985	2,093	1,887	2,134	2,066	2,112	2,041	2,093	2,086	2,017	2,069	2,018	2,103	2,060
1986	2,092	1,894	2,120	2,043	2,110	2,058	2,095	2,092	2,019	2,087	2,051	2,115	2,065
1987	2,089	1,890	2,132	2,069	2,106	2,033	2,097	2,083	2,024	2,098	2,042	2,117	2,065
1988 ¹	2,114	1,992	2,151	2,072	2,123	2,054	2,120	2,117	2,039	2,117	2,065	2,132	2,091
1989 ¹	2,111	1,902	2,137	2,076	2,131	2,059	2,117	2,103	2,037	2,104	2,058	2,129	2,080

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.221

Egg-Type Chicks Hatched by Commercial Hatcheries in the United States In Millions

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	32.6	33.0	39.3	36.7	38.3	37.5	30.5	30.9	31.8	32.3	29.6	34.4	406.9
1984	36.9	37.5	45.7	47.9	49.0	46.5	38.4	34.8	33.1	31.4	30.1	27.1	458.5
1985	28.3	28.4	36.9	40.9	39.0	33.8	32.1	32.5	33.6	33.6	33.6	34.2	406.8
1986	34.5	34.8	39.5	42.4	42.5	37.3	33.6	33.4	32.6	32.4	27.5	33.3	423.7
1987	34.2	35.8	41.7	42.4	40.9	37.3	33.4	34.7	31.8	34.0	30.6	31.2	427.8
1988	29.3	28.4	35.6	34.7	36.0	33.0	24.9	27.8	30.9	31.0	29.4	27.2	368.3
1989 ¹	26.6	27.2	32.7	35.9	38.3	34.7	30.2	32.4	32.7	33.3	29.9	29.3	383.2

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.220

U.S. Cold Storage Holdings of Shell Eggs, 1st of Month In Thousands of Cases (One Case = 30 Dozen)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	34	35	25	18	23	32	44	24	25	25	45	18
1984	13	28	17	36	35	41	42	29	31	23	37	35
1985	31	30	29	23	26	30	21	30	20	22	23	28
1986	24	28	21	20	32	44	38	25	33	29	20	29
1987	22	20	25	32	28	38	32	34	32	33	51	40
1988	43	67	53	33	14	21	30	28	25	23	24	26
1989 ¹	9	12	7	16	18	26	27	12	17	23	6	11
1990 ¹	12											

¹ Preliminary. Source: Crop Reporting, Board U.S.D.A.

T.217

U.S. Cold Storage Holdings of Frozen Eggs, 1st of Month In Millions of Pounds¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	25.4	25.5	25.7	23.1	22.5	21.2	21.1	20.4	19.0	16.4	14.2	13.4
1984	11.8	11.0	11.4	12.0	12.7	12.8	16.4	17.5	16.6	16.7	17.9	16.2
1985	13.4	14.9	13.9	13.5	13.2	14.4	15.3	18.0	18.4	16.4	15.1	13.8
1986	13.2	12.7	12.8	10.7	12.5	11.6	14.2	15.1	15.0	14.0	14.0	13.0
1987	12.8	14.3	13.5	14.5	14.9	17.4	16.9	17.3	17.5	16.5	17.9	17.4
1988	17.3	18.3	18.3	14.1	17.3	20.3	25.3	22.9	24.5	22.2	20.0	17.9
1989 ²	19.6	19.7	19.0	14.8	15.4	16.2	15.1	16.5	15.0	14.4	14.9	13.3
1990 ²	14.0											

¹ Converted on basis 39.5 pounds frozen eggs equals 1 case. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.218

Electric Power

U.S. electricity sales rose an estimated 1.8 percent in 1989 to 2.661 trillion kilowatt-hours, compared with 4.5 percent in 1988, according to the Department of Energy. The slower growth reflected milder weather, after 1988's cold winter and hot summer, and slowing industrial production. Assuming normal weather, total electricity sales were expected to grow 3 percent in 1990.

The weather in first-quarter 1989 was 6.6 percent milder than in the same period in 1988, and the third quarter was 15 percent cooler than in 1988. As a result, residential electricity usage was expected to be almost unchanged for the year. Commercial demand was forecast to rise by 2.7 percent, or half the 1988 pace, with industrial sales growing 2.1 percent, less than half the 1988 rate.

A mild summer helped the U.S. Northeast, where power generation capacity remained tight. In September, Hydro-Quebec suspended supplies of surplus power to New England under Phase I, an 11-year nonbinding pact that called for sales of up to 4 billion kwh/yr. Hydro-Quebec met its firm obligations to utilities in New York and New England; however, the announcement raised doubts about Phase II. Under that agreement, Hydro-Quebec was to provide a firm supply of 7 billion kwh/yr. for ten years beginning in 1990.

Canadian electricity surpluses were reduced in 1989 by continued economic growth in Canada,

reduced coal-generated supplies because of tougher air-pollution standards in Ontario, and the lingering effects of the 1987 and 1988 droughts in Quebec.

Power supplies also tightened in the Pacific Northwest, where 14 major industrial users agreed to let the Bonneville Power Authority curtail up to 50 percent of their power in 1990, if necessary. The prior agreement allowed 25 percent cuts. But because runoff was 17 percent less than normal in 1989, the amount of water passing through BPA generators fell by 7 million acre feet—about the same amount held by the Grand Coulee Dam, BPA's largest power source.

Total electric generation by U.S. utilities was projected to grow by 2 percent in 1990 to 2.795 trillion kwh, versus 1.4 percent growth in 1989. Much of the growth in U.S. generating capacity was expected to come from non-utility sources. The plants are built either by private owners who contract to sell power to regulated utilities, or as part of cogeneration projects that also produce steam for industrial use. Purchases from nonutilities were projected at 87.7 billion kwh in 1990, up 18 percent from 1989. Utilities had some 46 gigawatts of capacity—roughly equal to 46 large-scale power plants—on the drawing board for the 1990s, but according to the Gas Research Institute, an additional 45 gigawatts would be needed.

World Electricity Production In Billions of KWH

Year	Australia	Brazil	Canada	China	France	West Germany	India	Italy	Japan	Poland	Sweden	Spain	South Africa	United Kingdom	United States	USSR
1980	96.3	139.5	377.5		243.3	368.8		185.7	577.5	121.9	93.4		95.0	284.9	2,354	1,295
1981	102.5	142.2	390.9		263.4	367.1		178.9	583.2	115.0	102.8	110.0	97.4	276.7	2,359	1,325
1982	104.9	152.0	387.5	327.7	265.4	365.2	130.0	181.8	581.4	117.6	99.5	113.5	108.2	271.3	2,302	1,367
1983	106.3	162.0	408.4	351.4	281.3	372.0	139.9	180.1	618.1	125.9	108.9	114.7	108.3	275.6	2,368	1,396
1984	112.9	178.5	438.0	377.0	307.2	392.8	156.6	179.5	648.6	135.3	123.3	118.1	121.6	280.4	2,479	1,493
1985	121.7	192.7	459.0	410.7	325.7	406.7	170.2	182.3	672.0	137.7	136.5	125.6	121.5	293.7	2,568	1,544
1986	127.7	201.3	468.6	449.5	343.0	406.4	187.5	189.0	671.8	140.3	138.0	127.7	145.4	298.2	2,599	1,599
1987 ¹	133.8	202.3	496.3	497.3	352.6	418.5	201.9	201.0	699.0	145.8	129.6	129.4	152.0	301.9	2,686	1,668
1988 ²	140.4		503.5	593.5	365.5	422.7	221.1	203.2	710.0	144.3	149.4	135.9	147.5	309.1	2,702	1,705

¹ Preliminary. ² Estimate. Source: United Nations

T.222

Installed Capacity, Capability & Peak Load of the U.S. Electric Utility Industry In Millions of Kilowatts

Year	Total Electric Utility Industry	Installed Generating Capacity at Dec. 31										Capability at Winter Peak Load	Non-Coincident Winter Peak Load	Margin of Reserve (%)	Total Generation	Peak Load Factor (%)
		Type of Prime Mover				Type of Ownership										
		Hydro	Gas Turbine & Steam	Nuclear Power	Internal Combustion	Investor Owned	Cooperatives	Sub-Total Gov't	Municipal Utilities	Federal	Power Districts, State Projects					
1980	613.7	76.4	475.3	56.5	5.6	477.1	15.4	121.2	34.6	59.1	27.5	572.2	384.6	23.5	2,293	61.1
1981	635.0	77.2	491.3	60.8	5.6	490.8	18.4	125.7	35.1	61.0	29.5	581.1	391.1	25.2	2,311	61.6
1982	650.1	78.1	503.8	63.0	5.1	499.1	21.5	129.5	35.8	62.5	31.2	596.9	373.3	29.2	2,241	62.1
1983	658.2	79.0	507.1	67.1	5.0	505.5	22.2	130.5	36.6	63.0	30.9	611.6	410.8	25.0	2,310	59.5
1984	672.5	80.6	516.5	70.5	4.8	514.9	24.7	132.9	36.7	63.3	32.8	622.1	436.4	25.3	2,416	59.7
1985	688.7	83.0	520.3	80.4	5.0	530.4	24.6	133.8	37.0	63.7	33.0	636.5	423.7	25.9	2,470	62.0
1986	707.7	85.2	524.1	92.4	5.9	544.2	26.4	137.1	38.6	63.9	34.6	646.7	422.9	24.8	2,487	60.7
1987	718.1	85.9	524.3	101.6	6.2	552.8	26.4	138.9	39.4	64.7	34.9	663.0	448.3	23.4	2,572	60.8
1988 ¹	723.9	86.9	526.6	103.4	7.0	557.8	26.4	139.7	40.4	63.9	35.4	N.A.	466.5	20.0	2,702	59.5

¹ Preliminary. ² New series starting 1980. Source: Federal Power Commission

T.223

ELECTRIC POWER

Available Electricity & Energy Sales in the United States In Billions of Kilowatt Hours

Year							Sales to Ultimate Customers								
	Net Generation						Total Million \$	Total ⁴	Residential	Inter-Departmental	Commercial	Industrial	Street & Highway	Other Public Authorities	Railways & Rail roads
	Hydro	Electric Utility	Steam	Nuclear	Total ⁵	Other Sources ²									
1976	283.7	1,558	191.1	2,038	87	2,125	53,463	1,850	613.1	6.4	440.6	725.2	14.4	45.6	4.3
1977	220.5	1,648	250.9	2,124	88	2,212	62,610	1,951	652.3	7.2	469.2	757.2	14.4	46.2	4.2
1978	280.4	1,645	276.4	2,206	79	2,300	69,853	2,018	679.2	7.1	480.7	782.1	14.8	49.5	4.3
1979	279.8	1,708	255.2	2,247	71	2,318	79,640	2,084	696.0	7.4	494.7	817.6	14.8	49.6	4.3
1980	276.0	1,756	251.1	2,283	68	2,351	95,462	2,126	734.4	6.4	524.1	793.8	14.8	48.3	4.3
1981	260.7	1,759	272.7	2,295	70	2,365	111,016	2,151	730.5	6.2	521.7	819.6	14.7	53.7	4.2
1982	309.2	1,647	282.8	2,238			121,584	2,100	732.7	5.4	517.0	770.4	14.2	55.7	4.3
1983	332.1	1,682	293.7	2,308			129,507	2,158	750.9	5.4	546.3	780.0	14.1	56.7	4.3
1984	321.2	1,766	327.6	2,415			142,281	2,286	780.7	5.8	583.8	836.1	14.1	61.0	4.5
1985	281.1	1,803	383.7	2,470			149,162	2,306	792.9	5.3	605.9	820.3	14.6	62.2	4.7
1986	290.8	1,781	414.0	2,487			152,814	2,355	820.8	5.2	630.3	817.4	14.9	62.0	4.7
1987 ¹	249.7	1,865	455.3	2,572			155,712	2,435	846.4	4.5	658.4	843.7	14.4	63.0	4.9
1988 ³	222.9	1,950	526.9	2,704			162,188	2,550	885.1	4.4	695.2	880.9	14.5	64.6	5.1
1989 ³	250		510	3,000			160,000	2,520	864	4.2	680	886	14.2	66.0	5.2

¹ Preliminary. ² Includes generation of industrial and railway electric plants. ³ Estimate. ⁴ Also includes interdepartmental (averages about 600 million kwh). ⁵ Includes internal combustion. Sources: Federal Power Commission; Edison Electric Institute T.224

Electric Power Production by Electric Utilities in the U.S. In Billions of Kilowatt Hours

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1977	196.4	162.7	169.1	156.9	169.3	180.8	198.9	196.1	176.2	166.4	167.1	184.2	2,124
1978	197.3	173.7	173.2	159.7	175.2	187.4	202.6	205.6	185.6	175.6	176.3	191.7	2,206
1979	209.7	186.3	182.8	170.0	178.1	186.7	202.3	204.9	180.8	179.7	177.5	188.7	2,247
1980	200.0	188.7	187.5	168.7	175.7	189.4	216.8	215.4	191.5	178.6	178.6	195.6	2,286
1981	206.5	179.6	185.6	172.5	177.8	202.7	220.4	210.4	186.8	181.4	175.6	195.6	2,295
1982	209.4	180.3	187.7	172.6	177.1	186.1	210.6	205.7	180.7	173.0	173.4	184.7	2,241
1983	195.6	172.5	182.5	170.4	174.4	191.0	220.2	230.0	195.6	182.9	182.9	212.3	2,310
1984	216.6	189.6	200.1	181.1	192.2	209.6	221.2	229.3	195.2	190.9	190.4	200.0	2,416
1985	227.9	198.2	195.0	184.9	196.8	205.4	226.7	226.1	202.5	194.8	192.4	219.3	2,470
1986	217.5	192.3	196.8	186.1	197.3	215.0	242.7	225.2	206.7	197.8	196.4	213.6	2,487
1987	222.7	194.0	201.8	189.5	206.1	225.6	247.9	247.6	213.0	203.0	200.3	220.5	2,572
1988 ¹	237.9	216.9	214.0	196.0	208.4	232.7	257.5	267.7	220.2	210.6	209.6	232.8	2,704
1989 ¹	231.3	219.1	226.4	207.7	219.8	235.4	256.7	258.3	226.9				

¹ Preliminary. Source: Federal Power Commission

T.225

Use of Fuels for Electric Generation in the United States

Year	Consumption of Fuel			Total Fuel in Coal Equivalent (Thousand Short Tons)	Net Generation by Fuels ³ (Million Kw. Hr.)	Lbs. of Coal Per Kw. Hr. (Pounds)	% of Total Net Fuel Generation	Average Cost of Fuel Per Kw. Hr. (c)	Heat Rate BTU Per Kw. Hr.	Cost Per Million BTU Consumed (c)
	Coal (Thousand Short Tons)	Fuel Oil (Thousand Barrels) ²	Gas (Million Cubic Feet)							
1976	448,431	555,583	3,080,627	740,112	1,558,951	.950		1.20	10,369	115.3
1977	477,215	623,656	3,190,571	798,425	1,648,775	.969		1.38	10,449	131.8
1978	481,624	635,839	3,188,370	811,814	1,646,163	.986		1.53	10,495	145.3
1979	527,051	523,297	3,490,523	837,371	1,708,029	.981		1.62	10,470	155.4
1980	569,274	420,214	3,681,595	916,952	1,753,749	.980		2.07	10,489	197.0
1981	596,797	351,111	3,640,154	922,133	1,755,401	.992		2.42	10,506	230.2
1982	593,666	249,771	3,225,518	858,869	1,644,062	.996		2.46	10,517	234.0
1983	625,211	245,497	2,910,767	861,621	1,678,021	.993		2.40	10,539	227.1
1984	664,399	204,479	3,111,342	909,156	1,758,882	.990		2.41	10,385	232.0
1985	693,841	173,414	3,044,083	926,793	1,794,276	.990		2.27	10,429	217.7
1986	685,056	230,482	2,602,370	907,720	1,770,925	.989		1.92	10,423	184.5
1987	717,894	199,378	2,844,051	944,420	1,854,895	.981		1.84	10,354	177.7
1988 ¹	758,372	248,096	2,635,613	983,930	1,939,800	.985		1.76	10,328	170.7
1989 ⁴	750,000	260,000	2,500,000							

¹ Preliminary. ² 42-gallon barrels. ³ Excludes wood & waste fuels. ⁴ Estimate. Source: Federal Power Commission

T.226

Fertilizer

Fertilizer chemicals used in the U.S. consist of nitrogen, phosphorous, and potassium. Nitrogen fertilizer is derived from ammonia, made from natural gas and nitrogen; phosphorous is from phosphoric acid, made from phosphate rock and sulfuric acid; and potassium fertilizer is from potassium chloride, more commonly called potash. Fertilizer chemicals based on nitrogen account for 53 percent of U.S. fertilizer consumption; those based on phosphorous, 26 percent; and those based on potassium, 21 percent. The leading world producers of fertilizer in 1989 were the U.S., USSR, China, and Canada.

U.S. fertilizer use was up slightly in 1989 to nearly 20 million short tons. Although farmers used less fertilizer per acre for corn, soybeans, and wheat during the year, area planted to the major crops increased. Possible reasons for lower application rates were carryovers following 1988's drought and higher prices during the spring of 1989.

Total U.S. ammonia production was estimated at 13.8 million short tons in 1989, down slightly from the year before. Apparent consumption was estimated at around 16 million short tons. Fertilizer accounted for about 80 percent of U.S. ammonia consumption in 1989. Canada and the USSR were the biggest suppliers of U.S. ammonia imports. U.S. prices dropped sharply from early-1989 levels of \$160-\$175/short ton and averaged \$85/short ton for the year. The USSR was the largest ammonia

producer, followed by China and the U.S.

U.S. phosphate rock production in 1989 was estimated at 51 million tonnes, up from 45.4 million a year earlier. Production was higher, due to expectations of increased demand, much of which didn't materialize. U.S. consumption of phosphate rock in 1989 was estimated at 42.7 million tonnes, only slightly higher than in 1988. India became an unexpected market for diammonium phosphate in 1989, and helped alleviate a surplus supply situation. The average price of phosphate rock in 1989 was \$19.50/tonne. The leading world producer was the U.S., followed by the USSR and Morocco. The U.S. exported about 9 million tonnes of phosphorous rock in 1989, and was expected to boost exports by about 4 percent in 1990.

About 95 percent of U.S. potash sales are used in the fertilizer industry. The USSR is the largest producer of potash, followed by Canada. The U.S. imported approximately 72 percent of its potash needs in 1989. Canada accounted for about 90 percent of U.S. potash imports. The average price for potash in 1989 was \$130/tonne.

U.S. fertilizer production was expected to remain flat in 1990. The domestic industry was likely to continue its consolidation phase, as increased world demand for fertilizer is met by more competitive production from Asia and the Eastern Bloc. Domestic fertilizer use was expected to rise 3-4 percent.

World Production of Ammonia In Thousands of Short Tons of Contained Nitrogen

Year	Bulgaria	Canada	China	France	East Germany	West Germany	India	Italy	Japan	Mexico	Netherlands	Poland	Romania	United Kingdom	United States	USSR	Total
1981	1.1	2.4	13.4	2.5	1.3	2.2	3.5	1.3	2.0	2.0	2.0	1.5	2.6	2.0	15.7	14.2	84.8
1982	1.1	2.3	14.0	2.2	1.3	1.7	3.8	1.2	1.8	2.2	1.8	1.5	2.9	1.9	13.0	15.4	83.7
1983	1.2	3.2	15.2	2.2	1.3	1.9	3.9	1.2	1.7	2.1	1.9	1.6	3.0	1.9	11.3	18.6	88.7
1984	1.3	3.9	15.4	2.6	1.3	2.2	4.4	1.3	1.9	2.0	2.5	1.6	3.2	2.0	13.4	19.5	96.9
1985	1.3	4.0	16.5	2.2	1.3	2.1	4.8	1.6	1.8	2.0	2.6	1.4	3.2	1.9	13.2	20.1	98.9
1986	1.3	3.9	17.0	2.2	1.3	1.7	6.0	1.7	1.6	1.8	2.4	1.4	3.2	1.5	11.5	21.6	99.3
1987 ¹	1.3	3.0	16.0	2.2	1.4	2.1	5.8	1.6	1.7	2.0	3.1	2.0	3.1	1.6	13.3	22.1	102.7
1988 ²		3.6		2.0		1.9	6.8	1.7	1.7	2.3	3.3			1.2	13.9		109.0
1989 ²		3.7		1.7		2.0	7.4	1.7	1.7	2.5	3.6			1.2	13.8		112.8

¹Preliminary. ² Estimate. Source: Bureau of Mines

T.227

U.S. Salient Statistics of Nitrogen¹ (Ammonia) In Thousands of Short Tons

Year	Net Import Reliance as a % of Appar. Con.	Pro- duction (Fixed)	Imports Fixed	Exports (Am- monia)	Apparent Consumption			Producer Stocks (Year End)	Average Price (\$ Per Short Ton)			
					Fixed (Am- monia)	Elemental	Fixed		Urea		Ammonium Nitrate: Deliv. Corn Belt	Ammonia F.O.B. Gulf Coast
									F.O.B. Gulf ² Coast	Deliv. Corn Belt		
1980	9	16,244	1,921	681			17,754	1,483	170-175	155-170	110-115	120-125
1981	5	15,732	1,719	506			16,467	1,960	130-135	170-180	138-150	132
1982	8	13,029	1,737	610			14,145	1,970	122-125	135-145	125-145	120
1983	18	11,297	2,169	298			13,719	1,422	135-140	160-167	135-145	175
1984	13	13,368	2,699	438			15,346	1,705	147-149	168-200	135-150	147
1985	8	13,238	2,306	1,010			14,439	1,795	82-95	110-137	112-133	108
1986	13	11,499	2,048	531			13,305	1,507	75-78	90-110	100-120	75
1987 ³	13	13,284	2,357	848			15,251	1,053	144-117	125-135	100-120	90
1988 ⁴	15	13,930	3,032	642			16,353	1,020				120
1989 ⁴	14	13,800	3,100	600			16,120	1,200				85

¹ Elemental, Fixed, & Natural Nitrates. ² Prilled. ³ Preliminary. ⁴ Estimate. Source: Bureau of Mines

T.228

FERTILIZER

World Production of Phosphate Rock, Basic Slag & Guano In Ths. of Metric Tons (Gross Weight)

Year	Algeria	Brazil	China	Christmas Island	Israel	Jordan	Morocco	Nauru Island	Senegal	South Africa	Syria	Togo	Tunisia	United States	USSR	World Total
1980	1,025	2,612	10,726	1,713	2,307	3,911	18,824	2,087	1,632	3,185	1,319	2,933	4,582	54,415	30,300	144,193
1981	916	3,238	11,500	1,423	1,919	4,244	18,562	1,480	1,699	2,718	1,321	2,215	4,596	53,624	30,700	143,001
1982	947	2,732	11,720	1,328	2,148	4,390	17,754	1,359	1,182	3,161	1,455	2,800	4,196	37,414	31,300	127,382
1983	893	3,208	12,500	1,094	2,969	4,749	20,106	1,684	1,521	2,887	1,229	2,081	5,924	42,573	33,100	140,889
1984	1,000	3,855	11,800	1,259	3,312	6,263	21,245	1,358	1,912	2,585	1,514	2,696	5,346	49,197	33,300	151,568
1985	1,207	4,214	6,970	1,187	4,076	6,067	20,737	1,508	1,814	2,433	1,270	2,452	4,530	50,835	33,750	148,606
1986	1,203	4,509	6,700	880	3,673	6,249	21,178	1,494	1,850	2,920	1,606	2,314	5,951	38,710	33,900	138,740
1987 ¹	1,073	4,777	9,000	842	3,798	6,801	20,955	1,376	1,880	2,623	1,986	2,644	6,390	40,954	34,100	145,148
1988 ²			15,000		3,479	5,666	24,783		2,296	2,850		3,464	6,103	45,389	38,820	163,673
1989 ²			15,000		3,500	6,000	25,000		2,300	2,900		3,500	6,000	51,000	39,000	170,000

¹ Preliminary. ² Estimate. Source: Bureau of Mines

T.229

U.S. Salient Statistics of Phosphate Rock In Thousands of Metric Tons

Year	Mine Production	Marketable Production	Value Mil. \$	Imports for Consumption	Exports	Apparent Consumption	Stocks, Dec. 31 (Producer)	Price—\$ Avg. Per Metric Ton (f.o.b. Mine)	Avg. Price of Fla. & No. Car. \$ Tonne—F.O.B. Mine (-60% to +74)			Average
									Domes- tic	Ex- port		
1980	209,883	54,415	1,257	486	14,276	40,791	13,709	23.10	21.01	30.03		23.51
1981	183,733	53,624	1,438	13	10,395	35,144	19,619	26.82	25.17	33.74		27.68
1982	104,135	37,414	950	31	9,842	28,760	18,287	25.40	28.78	28.92		25.93
1983	125,691	42,573	1,021	9	12,010	34,838	14,500	23.97	22.64	25.70		23.48
1984	163,012	49,197	1,182	9	11,528	41,758	11,897	23.99	22.67	26.28		23.48
1985	175,227	50,835	1,236	34	9,136	37,532	15,534	24.31	23.08	26.72		23.81
1986	135,683	40,320	897	528	7,848	34,456	13,277	22.25	21.64	25.02		22.31
1987 ¹	148,426	40,954	793	464	8,454	35,683	10,884	19.37	18.93	22.87		19.77
1988 ²		44,952		673	8,092	41,022	9,207	19.56				
1989 ²		48,866		704	8,197	42,700	10,994	19.50				

¹ Preliminary. ² Estimate. Source: Bureau of Mines

T.230

U.S. Salient Statistics of Potash In Thousands of Metric Tons (K₂O Equivalent)

Year	Net Import as % of Consumption	Production	Sales by Producers	Value Mil. \$	Imports for Consumption	Exports	Apparent Consumption	Producer Stocks Dec. 31	\$ per ton		Average Price ² \$ Per Tonne
									Avg. Value Per Ton of Product—\$	Avg. Value of K ₂ O Equiv.	
1980	65	2,239	2,217	353.9	4,972	840	6,349	273	82.98	159.63	133
1981	65	2,156	1,908	328.9	4,796	491	6,213	520	89.62	172.40	137
1982	65	1,784	1,784	265.6	3,858	519	5,123	520	78.42	148.87	109
1983	75	1,429	1,513	220.8	4,440	300	5,653	391	74.85	145.97	100
1984	74	1,564	1,639	241.8	4,829	446	6,022	312	75.95	147.55	109
1985	76	1,296	1,266	178.4	4,593	513	5,346	336	71.22	140.89	96
1986	75	1,202	1,147	144.9	4,212	547	4,843	378	63.24	126.28	82
1987 ¹	75	1,262	1,485	195.7	4,073	470	5,088	155	67.38	131.73	93
1988 ³	71	1,521			4,217	380	5,264	248			132
1989 ³	72	1,540			4,300	400	5,460	228			130

¹ Preliminary. ² Unit of K₂O, standard 60% muriate f.o.b. mine. ³ Estimate. Source: Bureau of Mines

T.232

World Production of Marketable Potash In Thousands of Metric Tons (K₂O Equivalent)

Year	Canada (sales)	Chile	China	Brazil	France	Germany		Israel	Italy	Jordan	Spain	USSR	United States	United Kingdom	World Total
						East	West								
1980	7,532	25	12	—	1,894	3,422	2,737	797	156	—	658	8,064	2,239	321	27,857
1981	6,549	21	20	—	1,831	3,460	2,591	839	142	—	732	8,449	2,156	285	27,075
1982	5,309	22	26	—	1,704	3,434	2,056	1,004	146	9	692	8,079	1,784	245	24,510
1983	6,938	21	29	—	1,536	3,431	2,419	1,000	184	172	657	9,294	1,429	308	27,418
1984	7,527	18	40	—	1,739	3,465	2,645	1,100	163	295	677	9,776	1,564	325	29,334
1985	6,661	21	40	—	1,750	3,465	2,583	1,100	205	561	659	10,367	1,296	343	29,151
1986	6,752	20	40	10	1,617	3,485	2,161	1,255	158	660	795	10,200	1,202	403	28,758
1987 ¹	7,465	20	40	30	1,650	3,500	2,140	1,300	160	720	750	10,400	1,262	435	29,812
1988 ²	8,070	26		40	1,502		2,290	1,244	160	800	766	11,000	1,521	460	31,429
1989 ²	8,100	30		40	1,500		2,300	1,250	160	850	780	11,000	1,540	480	31,170

¹ Preliminary. ² Estimate. Source: U.S. Bureau of Mines

T.231

Flaxseed and Linseed Oil

World 1989/90 flaxseed production was estimated at 2.02 million tonnes, up 19 percent from the previous season. Canada regained its position as the largest producer with output of 590,000 tonnes, 59 percent above the previous drought-reduced crop. Canadian yields increased by 24 percent. The Argentine crop was estimated at 490,000 tonnes, or 9 percent above the year before, due to expanded acreage. India's output was expected to be unchanged at 400,000 tonnes, while the Soviet Union was likely to produce 230,000 tonnes, up 5 percent.

In the U.S., acreage planted to flaxseed remained the same, while yields almost doubled because of better weather. Production was 80,000 tonnes, up from 40,000 in 1988.

Flaxseed demand had been declining, as other fibers replaced flax, and latex or water-based paints reduced the need for linseed oil.

The world flaxseed crush was estimated at 1.56 million tonnes, 3 percent above a year earlier. Argentina has a large oilseed processing capacity and is a leading crusher, along with India, the U.S., and West Germany. Canada sends flaxseed to the U.S. and reimports linseed oil.

World flaxseed exports were estimated at 520,000 tonnes, down 2 percent from 1988/89. Canada is a leading exporter, while West Germany is a major importer. World ending stocks of flax-

seed in 1989/90 were projected at 260,000 tonnes, or 8 percent more than a year earlier.

World linseed oil production in 1989/90 was estimated at 540,000 tonnes, up 2 percent. Global consumption of linseed oil was projected at 570,000 tonnes, up 2 percent. Linseed oil is used mainly as a drying agent in paints and varnishes, and small amounts are consumed as food. World linseed oil exports were estimated at 200,000 tonnes, up from 190,000 the previous season. Argentina is a major exporter, followed by West Germany. Major importers include the Soviet Union, China and Poland.

World linseed meal output was expected to be one million tonnes, or 3 percent more than the previous season. Meal exports were placed at 470,000 tonnes, the same as the year before. Argentina and West Germany are the major exporters. Importers include Belgium, the Netherlands, and other EC countries. Worldwide consumption was forecast at 1.11 million tonnes, up 4 percent. World ending stocks of meal were expected to be unchanged at 20,000 tonnes.

Futures Market

Flaxseed futures are traded on the Winnipeg Commodity Exchange (WCE).

World Production of Flaxseed In Thousands of Metric Tons

Crop Year	Argentina	Australia	Czechoslovakia	Canada	Bangladesh	Egypt	France	Hungary	India	Mexico	Poland	Romania	Turkey	Uruguay	United States	USSR	World Total
1980-1	610	7	15	442		27	35	10	423	8	29	44	3	21	196	196	2,096
1981-2	600	7	12	468		18	18	11	483	12	24	38	2	14	185	165	2,086
1982-3	765	3	15	752	8	38	31	11	375	1	20	43	2	6	261	150	2,502
1983-4	660	4	15	444	8	16	22	11	444	4	19	23	2	9	175	259	2,139
1984-5	626	6	15	694	8	20	29	9	389	3	18	35	2	7	178	248	2,316
1985-6	460	12	15	902	8	22	34	7	380	10	18	36	5	6	211	201	2,350
1986-7	622	9	15	1,026	8	19	24	6	317	10	15	32	4	6	293	233	2,658
1987-8 ¹	550	9	15	729	8	20	26	7	372	10	15	35	4	3	189	228	2,269
1988-9 ²	450	4		370	8	20	28		400	10		35		3	40	220	1,700
1989-90 ²	490			530					400						80	230	1,960

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.233

U.S. Supply and Distribution of Flaxseed In Thousands of Bushels

Year Begin- ning June	Supply						Distribution				Total Distri- bution	
	Farm	Stocks, June 1 Term- inal	All Other	Total Stocks	Imports	Pro- duction	Total Supply	Seed	Crushing	Exports		Other ²
1979-0	977	—1,607—		2,584	1,916	12,014	16,514	650	12,425	174	-1,753	11,322
1980-1	2,681	—2,337—		5,018	2,510	7,728	15,256	547	11,927	76	-27	12,447
1981-2	1,136	—1,597—		2,733	3,502	7,289	13,524	691	11,231	11	-359	11,574
1982-3	1,175	—775—		1,950	1,921	10,278	14,149	486	8,722	638	1,091	10,937
1983-4	1,956	—1,258—		3,212	4,756	6,903	14,871	438	12,733	52	-68	13,155
1984-5				1,716	3,796	7,022	12,534	511	9,935	238	201	10,885
1985-6				1,649	2,927	8,293	12,869	517	10,313	250	160	11,240
1986-7				1,629	2,229	11,538	15,396	362	10,000	1,448	285	12,095
1987-8				3,301	2,913	7,444	13,658	210	10,800	156	167	11,333
1988-9 ¹				2,325	6,851	1,615	10,791	186	8,500	750	48	9,484
1989-90 ³				1,307	6,608	3,450	11,365	220	9,000	100	45	9,365

¹ Preliminary. ² Other disappearance represents cleaning loss, waste, and residual. ³ Forecasts. Source: Agricultural Statistics Board, U.S.D.A.T.235

FLAXSEED AND LINSEED OIL

U.S. Production of Flaxseed, By States In Thousands of Bushels

Crop Year	Minnesota	North Dakota	South Dakota	Total	Crop Year	Minnesota	North Dakota	South Dakota	Total
1982	1,650	5,873	2,755	10,278	1986	544	9,538	1,456	11,538
1983	938	4,600	1,365	6,903	1987 ¹	224	6,518	702	7,444
1984	653	4,875	1,494	7,022	1988 ¹				1,615
1985	950	6,008	1,335	8,293	1989 ¹				3,450

¹ Preliminary. Source: Agricultural Statistics Board, U.S.D.A.

T.234

Average Price Received by Farmers for Flaxseed in the U.S. In Cents Per Bushel

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average ¹
1980-1	655	702	717	710	723	759	754	748	725	735	765	747	720
1981-2	723	708	644	621	664	684	690	691	680	669	660	665	667
1982-3	625	535	537	511	495	468	486	470	460	454	469	492	517
1983-4	496	594	714	700	692	655	686	701	710	708	720	691	684
1984-5	625	607	572	567	595	605	659	664	618	667	694	654	609
1985-6	610	572	539	501	480	479	477	494	495	488	487	495	505
1986-7	439	380	369	346	339	341	318	313	304	315	335	344	344
1987-8	347	333	315	307	303	320	345	380	395	411	419	528	371
1988-9	629	719	767	785	809	834	870	809	809	778	756	678	770
1989-90	592	655	707	705									

¹ Season average includes an allowance for unredeemed loans. Source: Agricultural Statistics Board, U.S.D.A.

T.236



FLAXSEED AND LINSEED OIL

Supply and Distribution of Linseed Oil in the U.S. & World Production & Price In Millions of Pounds

Year Beginning June	Supply			Exports & Ship- ments	Domestic Disappearance				Total	World Production ³ In 1,000 tonnes						Price Rotter- dam Ex-Tank \$ Tonne
	Stocks June 1	Produc- tion	Total		Paint & Var- nish	Drying Oil Products Linoleum & Oilcloth	Resins & Plas- tics	Other In- edible		Total	Ar- gen- tina	India	Ja- pan	West Ger- many	U.S.	
1982-3	50	182	232	21	50.1		20.4		176	650	221	108			88	456
1983-4	35	265	300	51	56.5		27.7		201	670	206	128	38	66	120	556
1984-5	48	194	242	15	113.5		26.3		194	640	170	146	35	87	88	639
1985-6	33	205	238	15	131.0		29.7		184	600	112	110	36	124	93	475
1986-7	39	201	240	6	187.6				183	640	171	91	32	124	91	319
1987-8 ¹	51	217	268	10					217	620	168	109	34	79	98	441
1988-9 ²	41	170	211	11					150	520	141	116	35	48	72	716
1989-90 ²	50	180	230	10					170	540						861

¹ Preliminary. ² Estimate. ³ Oil production calculated from assumed extraction rates. Source: Economic Research Service, U.S.D.A. T.239

Factory Shipments of Paints, Varnish and Lacquer in the U.S. In Millions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	486.9	509.1	616.1	633.4	664.3	736.0	631.6	671.5	653.8	545.2	479.8	419.7	6,988
1983	491.3	518.8	656.6	676.8	728.5	808.6	692.1	754.3	713.6	656.9	580.1	505.9	7,783
1984	624.5	672.4	760.7	754.3	839.2	839.9	785.1	833.0	744.4	765.3	633.0	566.5	8,818
1985	621.9	613.1	745.7	855.9	920.6	871.4	853.6	855.2	797.0	811.0	665.4	564.1	9,175
1986 ¹	717.4	698.4	766.2	920.5	916.1	900.0	871.0	860.8	858.0	880.4	661.7	628.4	9,547
1987 ¹	704.0	762.3	857.5	911.3	924.2	940.9	914.1	898.5	879.6	895.4	751.7	681.3	10,168
1988 ¹	751.5	822.3	958.0	970.1	1,034.0	1,067.0	937.5	1,000.0	932.6	908.1	819.7	751.5	10,716
1989 ¹	820.5	841.3	952.6	985.7	1,072.7	1,091.5	965.9	1,114.4	1019.7				

¹ Preliminary. Source: Bureau of the Census

T.246

Wholesale Price of Raw Linseed Oil at Minneapolis in Tank Cars In Cents Per Pound

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
1982-3	27.8	26.3	26.0	24.6	25.0	25.2	24.6	25.0	24.3	23.6	23.0	23.0	24.9
1983-4	22.8	25.5	31.6	34.0	31.5	32.0	32.0	32.0	31.8	32.0	33.0	34.5	31.1
1984-5	33.4	38.0	31.0	28.8	28.5	30.0	31.2	32.0	N.A.	N.A.	N.A.	N.A.	31.6
1985-6	34.6	33.3	33.0	30.0	30.0	27.6	30.0	30.0	30.0	30.0	30.0	29.4	30.7
1986-7	29.0	29.0	29.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	26.0
1987-8	25.00	25.00	25.00	22.75	24.25	25.00	25.00	25.00	25.00	24.75	24.75	23.20	24.98
1988-9	35.00	37.00	41.50	42.00	42.00	41.50	41.00	41.00	41.40	42.00	42.00	39.75	40.51
1989-90	39.00	39.00	39.50										

Source: Department of Agriculture

T.240

U.S. Stocks of Linseed Oil (Crude & Refined) at Factories & Warehouses In Millions of Pounds

Year	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	April 1	May 1	June 1
1982-3	37.4	33.9	30.5	44.6	43.0	26.8	39.0	34.1	41.8	41.6	27.1	35.1
1983-4	54.7	46.5	41.7	50.4	46.0	34.9	34.1	38.0	40.3	41.5	55.2	47.6
1984-5	50.7	40.8	24.9	48.3	41.3	36.1	39.3	38.3	34.1	30.1	35.1	33.4
1985-6	32.7	36.9	25.4	47.0	62.3	55.2	60.6	62.7	64.6	66.0	56.1	40.1
1986-7 ¹	46.0	45.3	40.4	40.0	50.3	68.0	60.0	68.0	60.0	64.6	55.0	51.1
1987-8 ¹	52.2	45.9	40.2	52.1	54.3	50.4	50.8	56.1	39.0	35.4	35.5	40.8
1988-9 ¹	35.6	36.0	44.8	24.9	33.5	36.6	46.9	54.6	47.6	49.0	54.6	47.5
1989-90 ¹	48.4	43.8	23.3	21.5	24.3							

¹ Preliminary. Source: Bureau of the Census

T.245

United States Linseed Oil Consumption In Inedible Products In Millions of Pounds

Crop Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1988-89 ¹	7.4	10.7	9.9	9.6	11.1	8.5	13.4	13.2	12.3	14.2	20.0	12.2	142.5
1989-90 ¹	12.2	13.6	14.5	8.9									

Source: Bureau of the Census

1

Year of Delivery	Year Prior to Delivery							Delivery Year					Life of Delivery Range
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1987 High	—	280.0	262.8	265.2	258.7	250.4	239.2	222.5	213.0	195.5	204.5	218.7	280.0
Low	—	268.0	248.0	247.5	242.1	231.5	212.8	208.6	174.5	177.5	188.5	196.7	174.5
Close	—	268.0	248.0	260.5	245.0	238.7	217.8	209.7	176.1	188.6	198.5	199.2	—
1988 High	237.6	235.0	218.8	230.2	244.2	246.0	242.5	260.0	244.8	233.8	245.8	285.5	285.5
Low	231.0	214.0	214.0	217.6	227.3	228.8	231.0	236.0	224.8	223.8	231.9	236.5	214.0
Close	234.0	217.0	218.0	228.0	230.8	242.5	239.6	241.0	226.1	230.0	241.8	275.0	—
1989 High	—	417.0	431.0	490.0	454.5	427.5	405.5	426.0	411.7	419.2	396.0	381.0	490.0
Low	—	406.0	410.0	435.0	403.0	371.0	366.5	392.5	381.0	394.0	350.0	334.5	334.5
Close	—	406.0	431.0	450.0	419.0	371.5	405.0	411.7	404.0	395.5	355.5	339.5	—
1990 High	353.5	362.0	360.0	388.0	382.0	369.5	359.5						
Low	335.3	339.9	341.0	369.9	352.5	344.1	346.8						
Close	346.5	339.9	360.0	378.0	362.1	349.5	350.5						

T.243

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1985	5,408	5,927	6,281	5,783	6,321	5,848	5,016	5,913	5,815	4,315	4,186	4,024
1986	5,037	5,600	5,204	6,586	6,137	6,487	5,561	6,626	7,147	3,955	5,618	4,247
1987	3,956	3,546	4,599	7,088	7,161	6,304	6,607	6,747	8,276	5,690	5,792	5,089
1988	6,179	6,972	5,787	6,920	6,191	8,431	7,232	8,078	9,874	10,695	7,228	
1989	8,616	6,965	5,716	6,455	7,296	8,964	8,743	9,600	6,147	5,308	3,734	3,295

T.244

Gas

Total U.S. natural gas consumption in 1989 was forecast by the Department of Energy at 18.34 trillion cubic feet (tcf), up 1.8 percent from 1988. Residential use was virtually unchanged at 4.64 tcf, while commercial use fell to 2.62 tcf from 2.67 a year earlier, because of mild winter weather. However, firmer residual fuel oil prices boosted natural gas demand in the industrial sector.

During the first six months of 1989, industrial demand for gas rose by 5.2 percent, while non-utility residual fuel oil consumption fell 14 percent. Many factories routinely switch their boilers to the cheaper fuel. For all of 1989, industrial demand was put at 6.69 tcf, up from 6.38 tcf in 1988. Gas was expected to maintain its price advantage over residual fuel in 1990.

Natural gas deliveries were expected to rise 1.4 percent in 1990 to 18.66 tcf. However, assuming a return to a normal winter weather pattern, combined residential/commercial use was expected to expand by 2.5 percent, reversing 1989's decline, and industrial use was projected to grow by 1.6 percent.

Deliveries to electric utilities were forecast to rise by just over 1 percent in 1989 to 2.66 tcf. But increased generation from hydroelectric and nuclear plants was expected to cut 1990 natural gas purchases by 2.3 percent to 2.60 tcf.

On July 27, 1989, President Bush signed legislation decontrolling all wellhead gas prices by January 1, 1993. According to some industry estimates, total decontrol will add 50 tcf to recoverable U.S. reserves. The Potential Gas Committee (composed of experts from the Colorado School of Mines, government, and industry) estimated that potentially recoverable gas reserves in the U.S. were 796 tcf at the end of 1988. Of that, 424 tcf were recoverable at less than \$3 per million BTUs, a cost in line with \$18/barrel crude oil.

In September, the Federal Energy Regulatory Commission ruled that the New York Mercantile Exchange did not need its permission to effect physical deliveries of gas through pipelines under NYMEX's proposed natural gas futures contract. The contract was expected to begin trading in 1990.

World Natural Gas Production (Marketed Production³) In Thousands of Terajoule⁴

Year	Argentina	Canada	China	France	Indonesia	West Germany	Iran	Italy	Mexico	Netherlands	Poland	Romania	United Kingdom	United States	USSR	Venezuela	Australia
1978	256	2,856	535	307	353	720	668	524	701	3,048	244	1,475	1,458	18,846	12,967	-528	274
1979	303	3,041	566	303	482	729	700	581	832	3,100	224	1,409	1,470	19,415	14,160	601	303
1980	327	2,790	558	289	607	632	279	476	1,036	3,012	193	1,455	1,379	19,256	15,168	643	351
1981	340	2,748	496	277	653	673	247	533	1,033	2,975	187	1,532	1,374	19,057	16,215	647	406
1982	393	2,825	464	257	646	580	326	583	1,638	2,533	167	1,549	1,483	17,655	17,414	682	432
1983	457	2,740	475	297	773	635	326	495	1,452	2,691	193	1,537	1,527	15,986	18,638	668	443
1984	478	2,972	478	247	940	617	511	525	1,112	2,717	190	1,526	1,494	17,341	20,469	741	470
1985	509	3,189	502	217	937	584	557	539	1,068	2,839	200	1,522	1,665	16,365	22,149	727	502
1986	553	2,976	547	165	1,120	465	588	541	1,005	2,551	183	1,510	1,747	16,019	23,698	805	500
1987 ¹	574	3,254	541	206	1,080	582	622	618	1,011	2,350	180	1,551	1,681	17,629	25,295	908	630
1988 ²	667	3,757	556	174	1,200	544		627	1,100	2,079	179		1,617	16,625	26,000		650

¹ Preliminary. ² Estimate. ³ Comprises all gas collected & utilized as fuel or as a chemical industry raw material, including gas used in oilfields and/or gasfields as a fuel by producers. ⁴ Terajoule = 10¹² Joule = approx. 10⁹ BTU. Source: United Nations T.247

United States Recoverable Reserves and Deliveries of Natural Gas In Billions of Cubic Feet

Year	Recoverable Reserves of Natural Gas Dec. 31 ³	Deliveries								Total Deliveries	Electric Utility Plants ⁴
		Residential	Commercial	Lease & Plant Fuel	Carbon Black	Petroleum Refineries	Used as Pipeline Fuel	Industrial	Other Consumers		
1978	200,302	4,903	2,601	1,648			530	6,757	291	17,449	3,188
1979	200,987	4,965	2,786	1,499			601	6,899	301	18,141	3,491
1980	199,021	4,752	2,611	1,026			635	7,172		18,216	3,682
1981	201,730	4,546	2,520	928			642	7,128		17,834	3,640
1982	201,512	4,633	2,606	1,109			596	5,831		16,295	3,226
1983	200,247	4,381	2,433	978			490	5,643		15,367	2,911
1984	197,463	4,555	2,524	1,077			529	6,154		16,345	3,111
1985	193,369	4,433	2,432	966			504	5,901		15,811	3,044
1986	191,586	4,314	2,318	923			485	5,579		14,814	2,602
1987	187,211	4,315	2,430	1,149			519	5,953		15,542	2,844
1988 ¹	168,024	4,630	2,670	1,095			614	6,383		16,319	2,636
1989 ⁴		4,800	2,550	1,200			600	6,600		17,000	2,625

¹ Preliminary ² Figures include gas other than natural (impossible to segregate); therefore, shown separately from other consumption. ³ Estimated proved recoverable reserves of dry natural gas. ⁴ Estimated. Source: U.S. Dept. of Energy T.251

GAS

Gas Utility Sales in the United States by Types & Class of Service In Trillions of BTU's³

Year	Total Utility Sales	Number of Cust. (Mil.)	Class of Service					Revenue—Mil. \$ From Sales to Customers					
			Residential	Commercial	Industrial	Electric Generation	Other	Total	Residential	Commercial	Industrial	Electric Generation	Other
1978	14,748	46.0	5,107	2,500	6,932		211	32,150	12,939	5,696	13,139		377
1979	15,440	46.7	5,083	2,486	7,641		230	38,947	14,833	6,624	17,045		446
1980	15,413	47.4	4,826	2,453	7,957		177	48,303	17,432	8,183	22,215		473
1981	15,375	48.1	4,610	2,375	8,239		150	56,110	19,180	9,286	27,124		520
1982	14,183	48.5	4,770	2,471	6,794		147	63,200	23,700	11,666	27,200		634
1983	12,859	48.9	4,450	2,298	5,970		140	65,837	26,173	12,659	26,315		690
1984	13,162	49.5	4,628	2,396	5,991		146	67,496	27,485	13,205	26,093		713
1985	12,612	50.2	4,513	2,338	3,686	1,949	130	63,293	26,864	12,723	15,659	7,428	620
1986	11,126	51.0	4,380	2,238	2,892	1,449	167	51,194	24,750	11,268	10,554	3,949	673
1987	10,543	51.8	4,385	2,156	2,541	1,306	155	45,492	23,622	10,271	7,500	3,569	530
1988 ¹	10,691	53.1	4,747	2,306	2,251	1,229	158	46,362	25,158	10,783	6,739	3,141	541
1989 ²	10,650	54.0	4,600	2,200	2,100	1,100	150	46,750	25,600	11,000	6,300	3,000	600

¹ Preliminary. ² Estimate. ³ Data prior to 1978 are in millions of therms. Source: American Gas Association

T.253

Salient Statistics of Natural Gas in the United States

In Billions of Cubic Feet																		
Year	Supply			Total Supply	Disposition					Average Price Delivered to Consumers— \$ Per Ths. Cu. Ft.								
	Marketed Production	Storage Withdrawals	Import (Consumed)		Consumption	Exports	Stored	Extraction Loss	Unaccounted For	Total Disposition	Well-head Price	Imports	Exports	Residential	Commercial	Industrial	Electric Utilities	
1975	20,109	1,760	953	22,821	19,538	73	2,104	872	235	21,949	.45	N.A.		1.71	1.35	.96	.77	
1976	19,952	1,921	963	21,983	19,946	65	1,756	854	216	22,837	.58	N.A.		1.98	1.64	1.24	1.06	
1977	20,025	1,750	1,011	21,924	19,521	56	2,307	863	41	22,786	.79	N.A.		2.35	2.04	1.50	1.32	
1978	19,974	2,158	966	22,245	19,627	53	2,278	852	287	23,097	.91	2.21		2.56	2.23	1.70	1.48	
1979	20,471	2,047	1,253	22,964	20,241	56	2,295	808	372	23,772	1.18	2.60		2.98	2.73	1.99	1.81	
1980	20,180	1,972	985	22,515	19,877	49	1,949	777	640	23,292	1.59	4.28	4.70	3.68	3.39	2.56	2.27	
1981	19,956	1,930	904	22,191	19,404	59	2,228	775	501	22,967	1.98	4.88	5.90	4.29	4.00	3.14	2.89	
1982	18,520	2,165	933	21,000	18,001	52	2,472	762	475	21,762	2.46	5.03	5.81	5.17	4.82	3.87	3.48	
1983	16,822	2,270	920	19,354	16,835	55	1,822	790	642	20,144	2.59	4.78	5.10	6.06	5.59	4.18	3.58	
1984	18,230	2,098	843	20,443	17,951	55	2,295	838	143	20,443	2.66	4.08	4.92	6.12	5.55	4.22	3.70	
1985	17,198	2,397	950	19,855	17,281	55	2,163	816	356	19,855	2.51	3.21	4.77	6.12	5.50	3.95	3.55	
1986	16,791	1,837	750	18,692	16,221	61	1,984	800	427	18,692	1.94	2.44	2.81	5.83	5.08	3.23	2.43	
1987	17,349	1,905	993	19,536	17,211	54	1,911	812	359	19,534	1.67	1.94	3.07	5.54	4.77	2.94	2.32	
1988 ¹	17,808	2,270	1,294	20,657	18,028	74	2,211	816	344	20,657	1.69	1.84	2.73	5.47	4.63	2.95	2.34	
1989 ²	17,700	2,300	1,400	20,900	18,600	75	2,400	815	500	21,000	1.71	1.90		5.70	4.75	3.00	2.50	

¹ Preliminary. ² Estimate. ³ Total value of market production at the wellhead. Source: U.S. Dept. of Energy

T.248

United States Marketed Production¹ of Natural Gas In Billions of Cubic Feet

Year	Alaska	Arkansas	California	Colorado	Kansas	Louisiana	Michigan	Mississippi	Montana	New Mexico	Ohio	Oklahoma	Pennsylvania	Texas	West Virginia	Wyoming
1975	160	116	318		844	7,091	102	70	41	1,217	85	1,605	85	7,486	154	316
1976	166	110	354		829	7,007	119	71	43	1,231	89	1,727	89	7,192	153	329
1977	188	104	311		781	7,215	130	83	47	1,203	99	1,770	92	7,051	153	330
1978	203	107	311		854	7,476	148	107	47	1,174	114	1,774	98	6,548	149	357
1979	221	109	248		798	7,266	160	144	54	1,181	123	1,835	96	7,175	151	414
1980	231	112	310		735	6,639	159	175	52	1,150	139	1,892	97	7,116	157	410
1981	243	93	381		640	6,780	153	181	59	1,134	141	2,019	122	6,910	151	425
1982	264	125	384		430	6,172	153	167	57	991	138	1,934	121	6,469	151	425
1983	277	128	415		435	5,332	139	151	52	895	151	1,730	118	5,939	130	444
1984	289	135	476	173	466	5,825	145	158	51	957	186	1,986	166	6,185	144	517
1985	321	155	491	178	513	5,014	132	144	52	905	182	1,936	150	6,053	145	417
1986	305	131	462	164	466	4,895	127	141	47	703	182	1,917	160	6,152	135	403
1987	360	141	425	165	457	5,123	147	140	46	824	167	2,005	163	6,126	160	498
1988 ²	379	167	359	192	576	5,180	146	124	52	792	167	2,107	167	6,286	182	509

¹ Comprises gas either sold or consumed by producers, including losses in transmission, quantities added to storage and increases of gas in pipelines. ² Preliminary. Source: U.S. Dept. of Energy

T.250

Gasoline

Responding to sharply higher prices in the wake of the Exxon Valdez disaster on Good Friday, drivers cut back on discretionary travel during the summer of 1989. As a result, gasoline demand for the year was expected to be unchanged from the 7.34 million barrels per day (bpd) consumed in 1988, according to the U.S. Department of Energy. Consumption was forecast to increase by 1 percent in 1990 to 7.41 million bpd.

The retail price of gasoline jumped 17 cents/gal. during the second quarter of 1989, which was the largest U.S. quarter-to-quarter price increase on record. The last large jump was 15 cents between the fourth quarter of 1979 and the first quarter of 1980, during the Iranian hostage crisis and the second oil-price shock. The Exxon Valdez disaster got most of the blame for 1989's rise in prices. However, its grounding in Alaska's Price William Sound affected supplies only marginally. Panic buying occurred, particularly on the West Coast. By May, the average retail price had peaked at \$1.15/gal. Prices retreated to \$1.10 in August, historically the month with the highest prices.

A more important reason for the rise in prices was the decision of most Northeastern states to reduce summer Reid Vapor Pressure levels to 9 pounds per square inch, effective May 1. Previously, the summer RVP level for the region was set at 11.5. Because higher RVP levels (which translate into higher volatility of gasoline) are required to ensure that cars start in colder weather, the winter standard for the Northeast is 15 psi and the spring and fall standard is 13.5. The change, which was expected to reduce air pollution levels, was imposed by states from New Jersey through Maine, with the exception of New Hampshire. The cuts exceeded the revised federal requirement of 10.5 for the region, but were granted waivers by the EPA.

Ground-level ozone is a leading cause of summer smog, and a leading suspect in its creation is the

use of butane as an octane enhancer. Butane is both cheap and highly volatile on the RVP scale. Unfortunately, alternative unleaded octane enhancers are expensive, and refining crude to produce higher octane gas without enhancers further reduces the yield per barrel of crude. According to one industry estimate, the new standard cuts yield per barrel by a minimum of 6 percent. Butane at the high end cannot be used, while the bottom of the barrel is cut to replace lost octane.

To meet demand during the summer, refiners cracked distillate into gasoline (a process which cannot be reversed to build stocks for the heating oil season). Imports of gasoline from Western Europe were down sharply during the summer, reflecting strong demand in Europe. Blending imported gasoline to meet U.S. specifications is usually done after it is imported. In addition to the RVP level, oil companies adjust for octane and add their own proprietary mixtures of detergents to differentiate an otherwise fungible product.

The trend toward the development and marketing of higher-octane unleaded gasolines continued in 1989, even though most new cars were designed to operate at octanes as low as 87. However, because of the rising price differential between regular and premium, the latter lost market share. Between March and July, premium's share fell to 22 percent from 25 percent. Mid-grade unleaded increased its market share to 7 percent from 5 percent, largely at the expense of premium. Unleaded regular also benefited from the continued decline in leaded regular sales, expanding its share to 61 percent from 57 percent.

Futures Market

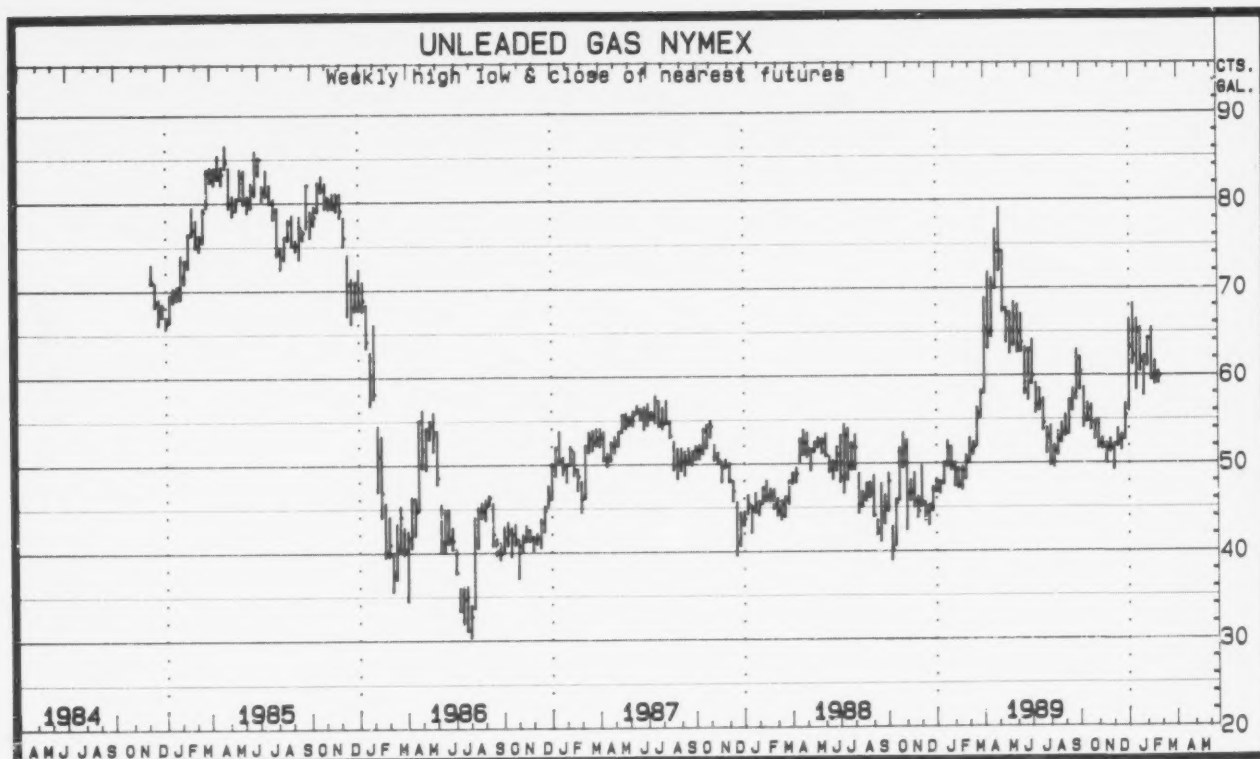
Unleaded regular gasoline and options on unleaded regular futures are traded on the New York Mercantile Exchange.

High, Low & Closing Prices of December Unleaded Regular Gasoline Futures In N.Y. In ¢ Per Gallon

Year of Delivery	Yr. Prior to Delivery			Delivery Year ¹											Life of Delivery Range
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov. ¹	
1986 High	—	—	—	61.00	52.50	43.50	40.65	42.60	39.60	35.30	43.55	46.40	43.90	43.00	61.00
Low	—	—	—	55.10	40.80	34.00	34.56	36.50	36.00	30.32	31.00	34.55	37.70	40.00	30.20
Close	—	—	—	55.10	41.75	34.00	36.08	38.25	36.00	31.30	43.18	40.24	41.53	41.28	—
1987 High	—	—	51.00	51.25	50.75	50.40	50.80	51.50	54.00	56.25	55.92	50.90	53.50	52.15	56.25
Low	—	—	49.25	48.65	45.90	46.70	47.70	49.30	51.00	52.86	47.10	48.10	50.10	47.85	45.90
Close	—	—	51.00	51.00	45.90	50.25	49.30	51.30	53.55	53.92	49.80	50.46	52.46	49.31	—
1988 High	—	—	—	—	—	—	48.80	47.70	47.70	44.80	43.90	42.16	46.92	49.70	49.70
Low	—	—	—	—	—	—	46.40	45.30	41.50	40.70	40.90	38.00	36.00	42.40	36.00
Close	—	—	—	—	—	—	46.80	47.38	41.53	43.68	41.80	38.74	44.33	49.05	—
1989 High	—	—	—	—	—	53.90	53.60	51.20	51.70	50.60	51.30	56.75	56.20	53.55	56.75
Low	—	—	—	—	—	45.90	47.00	47.20	46.30	47.60	46.70	50.80	52.10	49.30	45.90
Close	—	—	—	—	—	49.10	49.90	49.77	48.60	48.50	51.12	55.73	52.94	50.29	—
1990 High	48.95	49.95	54.05												
Low	48.60	48.20	49.85												
Close	48.95	49.50	54.05												

¹ Contract expires the last business day of the previous calendar month quoted. Source: N.Y. Mercantile Exchange

GASOLINE



Month-End Open Interest of Unleaded Regular Gasoline Futures in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1985	2,429	1,464	3,411	4,977	4,406	4,923	5,685	4,599	3,910	4,921	3,922	3,150
1986	4,703	3,703	3,212	2,850	4,625	3,457	4,637	8,021	16,177	19,622	17,568	27,100
1987	30,693	36,605	44,056	36,397	35,408	32,109	30,398	27,244	26,501	31,192	35,262	38,968
1988	43,653	42,811	46,096	45,012	47,524	55,874	52,794	45,251	30,070	47,328	49,845	47,189
1989	58,564	57,476	62,920	66,174	65,813	54,439	51,568	46,734	55,615	54,758	69,081	69,394

Source: N.Y. Mercantile Exchange

T.0576

Volume of Trading of Unleaded Regular Gasoline Futures in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	9,042	4,045	7,848	10,093	10,853	12,219	19,532	16,403	10,604	15,808	8,427	7,737	132,611
1986	13,478	11,914	9,459	7,352	14,033	10,288	12,878	17,396	55,329	104,884	74,711	107,630	439,352
1987	135,208	139,885	211,590	214,982	178,735	175,585	182,661	154,685	155,352	166,365	152,176	190,014	2,056,238
1988	196,616	191,231	245,019	217,139	257,507	330,009	401,196	254,010	294,512	355,982	308,438	240,366	3,292,055
1989	354,167	258,669	373,936	510,964	407,445	443,205	356,939	310,546	412,753	375,489	328,277	352,168	4,484,558

Source: N.Y. Mercantile Exchange

T.0576A

Refiner Sales Prices of Finished Motor Gasoline to End Users (Excluding Taxes) ¢ per Gallon

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	90.6	90.2	90.7	92.9	93.4	92.5	90.4	89.2	89.7	90.5	89.9	88.0	90.7
1985	84.6	83.6	87.1	92.4	94.4	95.2	95.4	94.0	91.9	90.8	91.7	91.9	91.2
1986	89.3	80.5	65.4	59.1	63.8	64.9	58.0	55.5	56.2	53.2	53.2	54.2	62.4
1987	59.7	62.1	62.7	64.9	66.3	67.7	69.6	71.6	70.5	69.7	69.4	67.4	66.9
1988 ²	64.9	63.3	62.5	66.0	68.4	68.1	69.9	71.8	70.0	68.0	67.6	66.1	67.3
1989 ²	65.8	66.2	68.6	81.9	85.8	84.7	82.4	76.9	75.2				

¹ Excludes aviation. ² Preliminary. Source: Bureau of Labor Statistics Energy Inform. Administration

T.498

Gold

In U.S. dollar terms, gold prices trended lower during the first three quarters of 1989, and were unable to compete with booming stock markets in Japan and the U.S. and with high real interest rates on U.S. government debt. After bottoming at \$358.10/oz. (London A.M. fix) on September 5, prices worked higher in the absence of significant producer selling and in response to the rapidly changing political situation in Eastern Europe and the USSR. A 190-point collapse by the Dow Jones Industrials on October 13 also drove some nervous capital into gold, where it stayed in spite of the stock market's recovery.

Yet, gold still lost 2.2 percent of its dollar value in 1989; the final fix for the year was \$401/oz., compared with \$410.15 at the last fix in 1988. The story was different in other currencies. Gold prices rose sharply in yen and Australian dollars, both of which lost ground against the U.S. dollar.

The U.S. Bureau of Mines (BOM) estimated 1989 world mine production of gold at a record 1,910 tonnes (61.4 million ounces), up 5 percent from the previous year's 1,820 tonnes (58.5 million ounces). Because of expanded production in North America and Australia (where miners accelerated output to beat the imposition of a tax on gold mining profits scheduled to start in 1991), another record was expected to be set in 1990.

South Africa remained the world's largest producer in 1989, despite a dip in output to 19.6 million ounces from 19.9 million in 1988. Devaluations of the South African rand, which raised the rand price of gold, lowered the pay limit, or the cut-off grade at which the gold in a tonne of ore covers mining costs. South African mining laws require mines to work at the lower pay limit, or to switch to mining lower-grade ores whenever the rand price rises. As a result, more ore was processed to produce less bullion in 1989.

South Africa's share of world mine production fell to 32 percent in 1989, continuing its descent from 70 percent in 1980. However, the decline was mainly due to the expansion of production elsewhere, rather than to South Africa's mining

problems, which include the near-exhaustion of many older mines.

Two dozen new gold mines opened in the U.S. in 1989, many others expanded capacity, and new base metal mines increased by-product gold output. U.S. mine production of gold rose 20 percent to 7.7 million ounces, breaking the record of 6.5 million set the previous year. For 1990, the BOM projected domestic mine production of 8.8 million ounces. In September, Newmont Gold Co. announced that it had poured its millionth ounce of gold for the year at its Nevada mining operations. Reportedly, that was the first time that a North American gold company had produced 1 million ounces of gold during a single year. Newmont projected total 1989 output of 1.4 million ounces.

U.S. primary refinery production of gold rose to 5.1 million ounces from 4.4 million a year earlier. Secondary refinery output, including tolled metal, also totaled 5.1 million ounces, up 25 percent from 4.1 million in 1988.

Reported U.S. industrial consumption of gold rose by 12 percent in 1989 to 3.5 million ounces. Jewelry and arts accounted for 58 percent of the demand. Industrial uses, mostly electronic, accounted for 35 percent, and dentistry took 7 percent.

However, apparent consumption fell to 4.2 million ounces from 4.7 million a year earlier, reflecting a decline in investor demand for bullion holdings. While the U.S. has been a net importer of gold, the Gold Institute predicted that expanded mine production would make the U.S. a permanent net exporter. For 1989, U.S. imports were estimated at 3.9 million ounces, and exports were 6.11 million.

Futures Markets

Gold futures and options on those futures are traded on the Commodity Exchange (COMEX) in New York. The Chicago Board of Trade, the Chicago International Monetary Market, and commodity exchanges in Tokyo, Winnipeg, Sydney and Hong Kong also trade gold futures.

World Mine Production of Gold In Metric Tons³ (1 ton = 32,150.7 troy oz.)

Year	Australia	Zaire (Congo)	Canada	China	Colombia	Ghana	India	Japan	Mexico	Nicaragua	Papua N. Guinea	Philippines	Zimbabwe	South Africa	United States	USSR ¹	Total World ¹
1987 ²	3,472	160	3,788	2,300	851	328	58	276	250	32	1,069	1,071	485	19,228	4,966	8,850	52,481
1988 ³	152		128	78										618	201	280	1,820
1989 ¹	200		150	80										610	240	280	1,910

¹ Estimated. ² Preliminary. ³ Data Prior to 1988 are in *ths. of troy ounces*. Source: U.S. Bureau of Mines

T.258

U.S. Mine Production of Recoverable Gold In Kilograms⁴ (1 kilo = 32.1507 troy oz.)

Year	Alaska	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	South Dakota	Utah	Other States	Total U.S.
1987 ¹	86.5	95.2	602.6	178.8	97.8	234.4	2,679.5	2	2	2	991.6	4,966.4
1988 ⁴	4,210	4,549	22,442	5,126	3,218	9,175	114,322	2	2	2	37,873	200,914
1989 ³	4,750	4,850	25,000	5,500	3,300	9,750	120,000				66,850	240,000

¹ Preliminary. ² Included in "Other States." ³ Estimate. ⁴ Data Prior to 1988 are in *ths. of troy ounces*. Source: Bureau of Mines

T.262

GOLD



Salient U.S. Gold Statistics In Thousands of Kilograms⁷ (1 kilo = 32.1507 troy oz.)

Year	Mine Production	Value Mil. \$	Refinery Prod.		Exports (Excl. coinage)	Imports For Con- sumption	Stocks, Dec. 31			Consumption				Price \$ Per Troy Oz. ⁴	
			Dom. & For- eign Ores	Secondary ²			Treas. Dept. ⁵	Futures Exch.	Ear- marked ⁶	Industrial	Dental	Industrial ³	Jewelry & Arts		Total
1980	970	594.1			6,119	4,542	264.3	5.0	354.5	.9	341	1,287	1,505	3,215	612.56
1981	1,379	633.9			6,437	4,652	264.1	2.4	350.6	.6	314	1,210	1,730	3,276	459.64
1982	1,466	551.0	1,308	1,785	2,970	4,921	264.0	2.3	348.6	.8	358	1,102	1,994	3,463	375.91
1983	2,003	849.1	1,972	1,784	3,139	4,593	263.4	2.5	341.4	.6	325	1,085	1,665	3,078	424.00
1984	2,085	751.8	2,101	1,769	4,981	7,869	262.8	2.4	337.3	.8	305	1,167	1,658	3,140	360.66
1985	2,427	771.0	2,076	1,602	3,966	8,226	262.7	2.1	337.4	.6	299	1,151	1,638	3,097	317.66
1986	3,739	1,377	2,396	1,345	4,995	15,749	262.0	2.8	332.7	.9	255	1,149	1,716	3,126	368.24
1987 ¹	4,966	2,225	3,613	2,034	3,846	3,843	262.4	2.6	329.7	.7	223	1,108	1,894	3,228	447.95
1988 ⁷	201		138	128	328	93	8,146	45	10,046	37	8	36	55	98	438.31
1989 ⁸	240		160	160	190	120	8,200	50	10,000	25	6	38	56	100	385.00

¹ Preliminary. ² Old Scrap. ³ Including space & defense. ⁴ Engelhard selling quotations. ⁵ Includes gold in Exchange Stabilization Fund. ⁶ Gold held for foreign & international official accounts at N.Y. Federal Reserve Bank. ⁷ Data prior to 1988 are in *thousands of troy ounces*. ⁸ Estimate. Source: Bureau of Mines

Commodity Exchange Inc. (COMEX) Depository Warehouse Stocks of Gold In Thousands of Ounces

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1983	2,247	2,621	2,754	2,645	2,636	2,723	2,630	2,648	2,570	2,538	2,500	2,485
1984	2,481	2,472	2,408	2,452	2,412	2,426	2,376	2,395	2,387	2,391	2,349	2,366
1985	2,308	2,308	2,273	2,109	2,136	2,142	2,133	2,107	2,119	2,083	2,099	2,105
1986	2,109	2,352	2,580	2,593	2,567	1,986	1,992	1,621	1,664	1,726	1,787	2,193
1987	2,890	2,798	2,817	2,903	2,628	2,665	2,614	2,624	2,670	2,636	2,644	2,645
1988	2,624	2,605	2,586	1,596	1,566	1,675	1,834	2,099	2,189	1,949	1,629	1,267
1989	1,434	1,408	1,454	1,532	1,606	1,634	1,602	1,602	1,433	1,483	1,731	2,263
1990	2,241											

Source: Commodity Exchange of N.Y. (COMEX)

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GOLD

High, Low & Closing Prices of December Gold Futures on COMEX In Dollars per Ounce

Year of Delivery	— Year Prior to Deliv. —			Delivery Year												Life of Delivery Range
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1984 High	450.0	452.0	443.5	419.7	434.0	439.5	416.5	414.0	422.0	389.8	369.0	356.3	355.8	353.5	332.6	608.0
Low	419.5	412.1	411.0	393.0	405.0	414.0	399.5	392.0	385.5	345.0	349.0	341.6	333.5	325.0	304.7	304.7
Close	411.1	445.1	421.4	404.9	426.9	416.4	401.1	410.4	391.6	350.3	358.0	351.3	336.0	329.1	312.1	—
1985 High	398.0	389.0	364.5	332.0	327.0	357.0	353.0	342.3	339.0	339.0	350.2	336.5	335.7	333.4	328.2	489.5
Low	370.0	355.0	330.0	317.8	301.5	306.0	328.0	319.0	320.5	315.5	326.5	318.2	324.9	322.1	313.0	301.5
Close	372.2	360.7	333.9	325.2	307.5	349.2	329.9	327.4	325.3	335.2	339.8	327.1	326.7	322.9	326.7	—
1986 High	363.6	358.5	352.3	392.0	375.0	375.0	361.0	358.0	362.2	371.3	404.5	446.0	446.5	443.8	400.0	446.5
Low	350.5	347.5	336.5	348.5	347.5	344.0	341.0	347.5	342.0	349.3	364.0	392.0	400.0	376.5	383.0	336.5
Close	352.4	348.5	351.4	369.7	356.6	345.3	357.7	353.9	354.0	369.7	393.3	429.8	405.0	390.9	389.3	—
1987 High	483.9	434.0	425.0	445.0	427.0	443.0	501.0	500.0	480.0	475.7	490.2	474.8	496.0	497.0	502.3	502.3
Low	443.0	398.5	404.0	415.0	407.0	420.0	432.2	462.5	447.7	452.7	456.9	458.0	457.9	456.0	475.0	365.0
Close	443.0	410.9	424.6	423.8	422.9	436.1	472.7	467.1	462.9	475.1	458.7	458.8	471.2	491.0	486.1	—
1988 High	546.0	536.0	542.0	520.5	482.0	478.0	479.0	477.1	485.0	461.0	448.6	439.7	419.0	428.9	433.5	546.0
Low	498.8	491.5	508.0	473.5	441.3	443.0	461.5	458.0	442.5	435.5	433.0	395.5	398.1	412.6	412.0	395.5
Close	508.8	529.1	519.6	478.5	448.8	472.0	466.5	469.9	448.1	447.3	439.9	399.2	415.1	424.8	413.9	—
1989 High	449.4	461.5	467.0	443.0	422.0	422.0	412.0	396.7	393.5	399.5	382.5	376.7	382.3	419.7	418.7	546.0
Low	429.5	444.8	436.5	419.0	403.3	402.0	393.5	371.0	367.5	374.0	364.6	360.6	364.3	375.7	399.5	360.6
Close	446.3	457.8	439.0	417.1	413.1	407.0	394.8	374.6	385.4	378.7	365.4	372.0	377.6	411.6	400.8	—
1990 High	409.0	450.0	449.0													
Low	389.2	400.8	424.3													
Close	403.3	442.3	429.3													

Source: Commodity Exchange of N.Y. (COMEX)

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Gold Total Open Interest at New York (COMEX) & Chicago Board of Trade¹ In Thousands of Contracts

Year	At New York (COMEX)												At Chicago (CBT ¹)			
	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Apr. 1	July 1	Oct. 1
1984	139.7	121.6	140.8	120.8	134.3	147.0	134.9	132.2	139.4	141.7	161.0	158.2	1.4	.6	.2	.2
1985	170.3	135.0	145.7	119.2	130.2	126.0	131.3	122.5	135.4	122.8	123.1	128.3	2.4	1.9	2.4	2.2
1986	132.8	141.3	144.4	139.9	134.3	114.0	122.4	127.0	143.8	128.9	149.5	132.2	1.3	1.6	1.2	2.4
1987	140.9	127.3	140.1	157.5	172.0	148.2	145.9	157.9	148.0	140.3	136.5	153.3	1.4	1.8	2.4	1.5
1988	150.5	153.2	159.3	147.6	155.1	141.4	150.6	139.1	140.7	158.7	160.3	144.1	1.0	1.8	1.1	.9
1989	155.4	168.5	167.3	160.1	169.0	177.4	157.4	150.3	156.0	145.8	151.9	148.1	.7	.4	.4	.4
1990	155.2												.7			

¹ Data are for "Kilo" gold at CBT. Source: Commodity Exchange of N.Y. (COMEX) & Chicago Board of Trade.

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Total Volume of Trading of Gold Futures at New York (COMEX) In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	749.3	786.5	829.8	563.2	833.7	737.8	1,006.9	791.3	753.2	671.3	814.9	577.7	9,122
1985	950.3	589.9	962.8	599.6	752.6	443.6	738.1	657.7	615.8	438.7	479.1	545.8	7,774
1986	1,126.2	574.2	703.9	617.9	482.2	451.6	527.6	711.1	1,054.7	846.9	724.3	579.6	8,400
1987	936.4	706.9	794.9	1,135.2	1,021.2	793.4	796.9	760.3	747.9	951.3	847.1	748.2	10,240
1988	815.0	778.7	965.0	637.7	866.2	946.3	884.2	587.5	790.9	694.5	895.5	634.9	9,496
1989	900.4	800.0	993.8	682.4	932.0	936.6	756.1	591.1	630.0	681.2	1,228.4	876.4	9,989

Source: Commodity Exchange of N.Y. (COMEX)

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U.S. Monetary Stock of Gold at End of Month In Billions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	11.120	11.116	11.111	11.109	11.104	11.100	11.099	11.098	11.097	11.096	11.096	11.096
1985	11.095	11.093	11.093	11.091	11.091	11.090	11.090	11.090	11.090	11.090	11.090	11.090
1986	11.090	11.090	11.090	11.089	11.085	11.084	11.084	11.084	11.084	11.066	11.070	11.064
1987	11.062	11.085	11.081	11.076	11.070	11.069	11.069	11.068	11.075	11.085	11.082	11.078
1988	11.068	11.063	11.063	11.063	11.063	11.063	11.063	11.061	11.062	11.062	11.062	11.059
1990	11.057	11.056	11.061	11.061	11.060	11.063	11.066	11.066	11.065			

Source: Federal Reserve Board

T.264



Monthly Average Gold Price (Handy & Harman at New York) \$ Per Troy Ounce

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	675.4	665.5	553.6	516.8	513.9	600.7	643.3	627.5	675.8	660.3	622.5	594.8	612.51
1981	557.4	500.3	498.8	494.9	479.8	460.8	408.8	411.0	444.1	437.2	413.7	408.7	459.61
1982	384.1	374.1	330.3	350.0	334.4	315.0	340.1	366.0	435.6	421.8	414.1	445.4	375.94
1983	479.9	490.4	419.7	432.2	437.6	412.8	423.1	416.3	411.5	393.2	382.3	387.1	423.83
1984	370.9	386.0	394.4	381.7	377.3	377.7	346.4	347.7	340.9	340.1	340.9	319.0	360.23
1985	302.8	298.8	303.9	324.9	316.1	316.5	317.8	330.2	322.6	326.2	325.5	322.4	317.31
1986	345.5	339.3	345.4	340.6	340.5	342.8	348.9	376.9	419.0	423.6	398.8	391.2	367.70
1987	408.3	401.3	408.9	438.7	460.1	449.6	450.8	460.9	460.2	465.5	466.5	486.0	446.40
1988 ¹	476.6	441.9	443.6	451.8	450.8	451.3	437.6	431.3	412.8	406.8	420.1	418.5	436.93
1989 ¹	404.0	387.8	390.1	384.4	371.3	367.6	375.0	364.9	364.9	367	394	409	381.4

¹ Preliminary. Source: U.S. Bureau of Mines; American Metal Market, Handy & Harman

T 259

Grain Sorghum

World sorghum (milo) production in 1989/90 was projected at 57.8 million tonnes, up 5 percent from the previous drought-damaged crop. The U.S. is by far the world's largest producer. India is next, and its crop was forecast at 11.5 million tonnes, 10 percent more than in 1988/89. China was expected to produce 5.5 million tonnes, while Mexico's crop was put at 3.9 million.

World exports of sorghum were projected by USDA at 9.1 million tonnes, down 17 percent from the previous season. The U.S. share of the export market was expected to be 71 percent, compared to 74 percent the year before. Argentine exports were forecast to rebound to 900,000 tonnes from 700,000 in 1988/1989. Australia was likely to ship 400,000 tonnes, down from 500,000.

Imports by Japan were placed at 3.6 million tonnes, off 12 percent from the previous season. Venezuela was likely to import 1.0 million tonnes, while the USSR purchased about 800,000 tonnes. World sorghum consumption was expected to rise by 2 percent to 60.7 million tonnes. World carryout stocks were estimated at 12.4 million tonnes, down 19 percent from the season before.

U.S. production was estimated at 629 million bushels, up 9 percent from 1988's drought-reduced crop. Harvested acreage was 10.5 million, and the

national average yield was 59.8 bushels per acre. The major producing states were Kansas, Texas, and Nebraska.

U.S. beginning stocks in 1989/90 were 438 million bushels, 34 percent less than a year earlier. Total U.S. supplies were estimated at 1.07 billion bushels, down 14 percent. Total use of sorghum, including exports, was forecast to fall by 5 percent to 765 million bushels. Use for feeding purposes was put at 500 million bushels, 6 percent more than the season before. The price of wheat was high relative to sorghum, which encouraged sorghum feed use.

Projected exports of sorghum were 250 million bushels, 19 percent less than the previous season. The major U.S. markets were Japan and Mexico. At the end of 1989/90, U.S. stocks of sorghum were expected to total 302 million bushels, down 31 percent from the previous season.

The 1990 price support loan rate for sorghum was \$2.66 per hundredweight, and the target price was \$4.66. The 1990 acreage reduction requirement was 10 percent, unchanged from 1989.

Futures Market

Sorghum futures began trading on the Kansas City Board of Trade in May 1989.

World Sorghum Supply and Demand In Millions of Metric Tons

Crop Year	Exports				Imports			Total Production	Utilization					Stocks ³		
	Argentina	Non-U.S.	U.S.	Total	Japan	U.S.S.R.	Total		China	Japan	Mexico	U.S.	Total	Non-U.S.	U.S.	Total
1986-7	1.0	2.7	5.1	7.8	4.2	.1	7.8	64.5	5.5	4.2	5.1	13.9	60.3	4.2	18.9	23.1
1987-8	1.2	2.2	6.1	8.3	3.9	0	8.3	56.2	5.5	3.8	4.8	15.0	59.5	3.0	16.8	19.8
1988-9 ¹	1.7	2.8	8.1	10.9	4.1	1.2	10.9	55.0	4.8	4.1	5.5	12.4	59.9	3.8	11.1	14.9
1989-90 ²	.9	2.6	6.5	8.9	3.6	.8	8.9	57.0	4.6	3.6	5.2	13.1	61.1	3.2	7.7	10.8

¹ Preliminary. ² Estimate. ³ End of crop year season. Source: Foreign Agricultural Service, U.S.D.A.

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Salient Statistics of Grain Sorghum in the United States

Crop Year	Acreage Planted ² for All Purposes 1,000 Acres	For Grain				For Silage			U. S. Exports of Feed Grains - Under Gov't. Programs			
		Acreage Harv.	Production 1,000 Bushels	Yield Per Harv. Acre Bushels	Price Cents Per Bushel	Produc. Value Million Dollars	Acreage Harv. 1,000 Acres	Production 1,000 Tons	Yield Per Harv. Acre Tons	Title I Sales (In Thousand Metric Tons)	Mutual Security (AID)	Total All
1985-6	18,285	16,782	1,120,271	66.8	193	2,243	534	6,566	12.3	211	405	1,767
1986-7	15,336	13,859	938,124	67.7	137	1,322	500	5,898	11.8	124	445	701
1987-8	11,804	10,604	740,869	69.9	155	1,156	424	5,157	12.2	333	420	844
1988-9 ¹	10,358	9,052	577,551	63.8								
1989-90 ¹	11,945	10,520	628,908	59.8								

¹ Preliminary. ² Grain and sweet sorghums for all uses including syrup. Source: Crop Reporting Board, U.S.D.A.

T.267

Production of All Sorghum for Grain in the United States, by States In Thousands of Bushels

Year	Ala-bama	Arizona	Arkansas	California	Colorado	Kansas	Missouri	Nebraska	New Mexico	North Carolina	Oklahoma	South Dakota	Texas
1985	12,650	1,296	66,240	2,988	11,200	296,700	117,030	154,400	13,920	3,224	22,500	15,000	241,900
1986	4,000	1,044	40,920	2,210	11,700	311,250	92,340	136,170	10,350	1,400	23,030	14,030	213,750
1987	1,920	990	29,160	1,800	9,890	273,750	59,500	109,200	7,980	1,935	18,860	14,310	166,950
1988	1,025	400	21,080	1,200	8,280	204,600	38,070	103,360	8,700	2,730	16,200	11,000	135,450
1989 ¹	1,650	360	23,460	1,068	15,600	210,000	46,170	97,600	9,350	3,480	19,125	11,600	159,600

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.268

GRAIN SORGHUM

U.S. Grain Sorghum Quarterly Supply and Disappearance In Millions of Bushels

Year & Period Beginning Sept. 1	Disappearance												
	Supply				Domestic Use						Ending Stocks		
	Begin. Stocks	Pro- duction	Im- ports	Total Supply	Food, Al- cohol & Industrial	Seed	Feed & Resid.	Total	Ex- ports	Total	Gov't. Owned ¹	Pri- vately Owned ²	Total Stocks
1985-6	300.2	1,120.3	—	1,420.5	26.0	1.7	663.8	691.5	178.0	869.5	207.2	343.8	551.0
Sep.-May	300.2	1,120.3	—	1,420.5	22.1	1.2	626.9	650.2	140.3	790.5	181.4	447.5	630.0
June-Aug.	630.0	—	—	630.0	3.9	.5	36.9	41.3	37.7	79.0	207.2	343.8	551.0
1986-7	551.0	938.1	—	1,489.1	10.4	1.5	535.6	547.5	198.3	745.8	409.0	334.3	743.3
Sep.-May	551.0	938.1	—	1,489.1	8.2	1.0	490.1	499.3	154.8	654.1	400.4	434.6	835.0
June-Aug.	835.0	—	—	835.0	2.2	.5	45.5	48.2	43.5	91.7	409.0	334.3	743.3
1987-8	743.3	739.2	—	1,482.5	23.5	1.3	563.7	588.5	231.3	819.8	463.6	199.1	662.7
Sep.-May	743.3	739.2	—	1,482.5	14.2	.8	474.4	489.4	185.3	674.7	535.0	272.8	807.8
June-Aug.	807.8	—	—	807.8	9.3	.5	89.3	99.1	46.0	145.1	463.6	199.1	662.7
1988-9 ³	662.7	577.6	—	1,240.3	20.5	1.5	470.4	492.4	309.9	802.3	340.9	97.1	438.0
Sep.-May	662.7	577.6	—	1,240.3	17.0	.8	426.2	444.0	237.8	681.8	463.6	94.9	558.5
June-Aug.	558.5	—	—	558.5	3.5	.7	44.2	48.4	72.1	120.5	340.9	97.1	438.0
1989-90 ⁴	438.0	628.9	—	1,066.9	— 15.0	—	500.0	515.0	250.0	765.0	275.0	26.9	301.9

¹ Uncommitted inventory. ² Includes quantity under loan & farmer-owned reserve. ³ Preliminary. ⁴ Estimate. Source: Economic Research Service, U.S.D.A. T.269

Average Price of Sorghum Grain, No. 2, Yellow at Kansas City In Dollars Per 100 Pounds (Cwt.)

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
1981-2	4.16	4.14	4.14	4.27	4.44	4.26	4.28	4.45	4.48	4.50	4.38	4.02	4.29
1982-3	4.06	3.85	4.25	4.37	4.37	4.54	5.08	5.30	5.37	5.37	5.32	5.69	4.80
1983-4	5.55	5.37	5.25	5.16	5.09	5.03	5.40	5.36	5.39	5.40	4.95	4.74	5.22
1984-5	4.46	4.25	4.28	4.32	4.48	4.33	4.58	4.76	4.74	4.74	4.50	4.06	4.46
1985-6	3.56	3.62	3.75	3.97	3.95	3.80	3.82	4.00	4.25	4.00	3.20	2.71	3.72
1986-7	2.47	2.60	2.70	2.62	2.50	2.57	2.80	2.85	3.10	3.20	2.80	2.55	2.73
1987-8	2.64	2.75	2.90	2.95	3.05	3.24	3.27	3.16	3.21	4.58	4.79	4.28	3.40
1988-9 ¹	4.27	4.17	4.00	4.23	4.24	4.26	4.32	4.17	4.29	4.15	3.96	3.92	4.17
1989-90 ¹	2.65	3.91	4.00	3.98									

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.271

U.S. Exports of Grain Sorghum, by Country of Destination In Thousands of Metric Tons

Yr. Beg. October	Poland	Belg. & Luxem.	Canada	Spain	W. Ger-many	Tai-wan	Venezu-ela	Israel	Japan	Senegal	Nether-lands	Nor-way	Mexico	South Africa	Total All Exports
1980-1	—	60.0	—	—	—	—	501	449.0	2,725.4	13.3	11.5	198.9	2,646.3	.3	7,701.6
1981-2	—	.4	—	790	.4	—	713	368.0	2,436.9	1.9	.4	201.2	544.2	—	6,289.8
1982-3	—	0	—	105	—	—	243	340.7	741.0	13.9	0	44.6	3,260.3	.2	5,402.6
1983-4	0	0	—	465	0	—	206	573.6	1,504.8	145.0	.2	0	2,758.4	.2	6,225.6
1984-5	0	.1	.4	45	.1	—	1,093	502.7	2,389.8	30.5	19.3	0	2,061.8	11.8	7,454.7
1985-6	0	0	.1	—	.1	244	916	493	2,182	6.9	4.1	0	372	0	4,111
1986-7 ¹	97.3	0	6.4	—	0	598	708	229	2,508	0	—	0	788	2.0	5,119

¹ Preliminary. Source: Grain & Feed Division, U.S.D.A.

T.270

Grain Sorghum Price Support Program & Market Prices

Year Beginning September	Price Support Operations (Million Cwt.)				Total Paym. to Part.-Mil. \$	Support Loan — \$ Per Cwt. —	Target Price	No. 2 Yellow (\$ Cwt.)			
	Put Under Price Support Quantity	% of Production	Acquired By CCC	Owned by CCC Sept. 30				Kansas City	Texas High Plains	Los Angeles	Gulf Ports
1980-1	18.1	5.6	.1	21.4		3.82	4.46	5.48	5.97	7.31	6.27
1981-2	155.0	31.5	6.5	24.0		4.07	4.55	4.29	4.87	6.18	5.03
1982-3	134.5	28.8	41.0	92.4	67	4.32	4.64	4.80	5.19	6.56	5.41
1983-4	7.6	2.8	1.7	50.0	114	4.50	4.86	5.22	5.53	6.69	5.77
1984-5	36.4	7.5	36.4	67.6	158	4.32	5.14	4.46	5.04	6.08	4.90
1985-6	201.0	32.0	87.5	116.2	228	4.32	5.14	3.72	4.33	5.57	4.07
1986-7	221.7	42.2	127.9	229.0	585	3.25	5.14	2.73	3.24	4.50	3.22
1987-8 ¹	200.0	48.2	150.0	300.0	699	3.11	5.14	3.40	3.81		3.96
1988-9 ²					363	3.00	4.96	4.17	4.66		4.81

¹ Preliminary. ² Estimate. Source: Economic Research Service, U.S.D.A.

T.272

Hay

All hay production was expected to rebound in 1989/90 to 145 million short tons from 127 million in drought year 1988/89. The harvest and reduced May 1 carry-in stocks (17.6 million tons versus 27.4 in 1988) left supplies only slightly above a year earlier, indicating the need for conservative hay use in some areas.

About 63 million acres were expected to be harvested in 1989/90, compared with nearly 66 million the previous year (which included substantial set-aside and conservation reserve acres allowed to be harvested for hay, due to the 1988 drought).

Yields in 1989/90 were forecast at 2.31 tons per acre, which was up from 1.93 tons the previous

season, but somewhat low relative to averages in the mid-1980s. Yields in Kansas, Iowa, Nebraska, North Dakota, and Texas were improved from 1988/89, but still fairly low because of dry weather. The wet spring in the eastern Corn Belt in 1989 and storms in the Southeast may have affected hay quality.

Hay prices received by farmers were sharply higher in drought year 1988/89, and this strength continued into 1989/90. Hay prices in the summer of 1989 were about \$85-\$95/ton, up slightly from the previous summer. In November 1989, hay was about \$84/ton.

Salient Statistics of All Hay in the United States

Year Beginning May	Acres Harvested 1,000 Acres	Yield Per Acre Tons	Pro- duc- tion Million Tons	Carry- over May 1	Disap- pear- ance	Supply Per Animal Unit In Tons	Disap- pearance	Animal Units Fed ² Millions	Farm Price \$ Per Ton	Farm Produc. Value Million \$	Retail Price Paid by Farmers for Seed, April 15			
											Alfalfa (certi- fied)	Timothy	Red Clover	Sudan- Grass
											Dollars Per Cwt.			
1984-5	61,445	2.45	150.6	20.1	143.8	2.05	1.73	83.2	72.70	10,204	219.00	69.30	145.00	42.40
1985-6	60,423	2.46	148.6	26.9	148.8	2.18	1.84	80.7	67.60	9,437	219.00	58.80	121.00	43.50
1986-7	62,419	2.49	155.5	26.7	149.8	2.33	1.91	78.3	59.70	8,611	219.00	78.10	133.00	44.70
1987-8	60,748	2.46	149.3	32.4	154.4	2.38	2.02	76.4	65.10	9,719	222.00	107.00	160.00	44.20
1988-9 ¹	65,559	1.93	126.8	27.4	136.5	2.01	1.78	76.6	87.10	11,044	245.00	132.00	143.00	42.00
1989-90 ¹	62,742	2.40	150.5	17.6		2.17		77.4			249.00	132.00	143.00	45.30

¹ Preliminary. ² Roughage-consuming animal units fed annually. Source: Economic Research Service, U.S.D.A.

T.275

Production of All Hay in the United States by Important States In Millions of Tons

Year	Calif.	Idaho	Ill.	Iowa	Mich.	Minn.	Mo.	No. Dak.	Nebr.	N.Y.	Ohio	Pa.	So. Dak.	Wis.	Texas
1985	8.0	4.1	4.1	7.1	5.7	8.0	6.5	3.8	6.8	5.3	4.6	5.3	4.8	11.1	8.2
1986	8.6	4.7	3.7	8.0	5.7	9.7	6.0	5.4	7.4	5.4	4.3	5.1	9.3	10.8	7.5
1987	9.0	4.5	3.2	6.7	4.4	7.8	6.2	4.8	6.9	5.3	4.4	5.2	7.1	8.9	7.9
1988	8.7	3.9	3.3	6.8	4.2	7.0	5.2	2.0	6.5	4.9	3.5	4.7	3.9	4.9	5.4
1989 ¹	8.7	4.1	3.3	5.7	5.4	6.2	6.9	3.3	6.3	5.1	4.6	5.5	4.3	10.3	8.0

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.277

U.S. Types of Hay Production & Farm Stocks In Millions of Short Tons

Crop Year	Alfalfa & Mixtures	All Other	Production			Farm Stocks	
			All Hay	Corn for Silage ¹	Sorghum ¹ Silage	May 1	Dec. 1 ³
1984	90.1	60.5	150.6	104.6	6.5	20.1	89.3
1985	85.0	63.6	148.6	102.8	6.6	26.9	100.6
1986	91.6	64.0	155.5	88.7	5.9	26.7	121.7
1987	84.8	64.5	149.3	85.6	5.2	32.4	119.8
1988 ²	69.3	57.5	126.8			27.4	90.9
1989 ²	79.9	70.6	150.5			17.6	

¹ Not included in all tame hay. ² Preliminary. ³ Data prior to Dec. 1, 1986 are for Jan. 1. Source: Crop Reporting Board, U.S.D.A.

T.276

Mid-Month Price Received by Farmers for All Hay (Baled) In Dollars Per Ton

Year	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Average ¹
1984-5	82.50	76.10	72.40	70.40	70.70	73.10	71.40	73.40	73.00	73.10	72.20	72.50	72.70
1985-6	80.80	70.20	67.90	65.20	67.10	67.50	64.30	65.40	65.80	66.70	67.10	66.20	67.60
1986-7	66.70	61.00	58.80	58.20	57.60	57.80	56.00	57.70	56.10	58.50	59.20	64.10	59.70
1987-8	71.70	62.90	61.20	62.70	64.10	64.20	61.10	63.20	62.80	64.60	67.20	71.40	65.10
1988-9 ²	81.10	77.40	82.30	82.10	85.10	86.80	87.60	89.60	91.20	93.70	98.10	104.00	87.10
1989-90 ²	104.00	94.80	85.40	82.80	85.00	85.70							

¹ Weighted average by sales. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.278

Heating Oil

U.S. demand for distillate fuel oil in 1989 was 3.12 million barrels per day (bpd), unchanged from 1988 consumption, according to estimates by the Department of Energy (DOE). Distillate is used as heating oil and as diesel fuel. The major differences between the products are the additives used to keep diesel flowing in cold weather and the highway taxes imposed on it. While transportation use rose, heating oil demand was muted by the mild winter of 1988/89. For 1990, DOE was expecting distillate demand to grow by 1.6 percent, reflecting a return to more typical winter weather and a slowdown in transportation demand.

Assuming a normal winter, the DOE's base-case forecast for the October 1989-March 1990 heating season called for heating oil demand of 3.43 million bpd, up 2.4 percent from the 1988/89 average. Refinery output of distillate was put at 2.93 million bpd, assuming a capacity utilization rate of 87 percent (the highest for any winter) and a distillate yield matching the record of 23 percent. That still left a need for record net imports of 310,000 bpd.

Beginning stocks for 1989/90 were 122 million barrels, down 7 percent from a year earlier. Hurricane Hugo's damage to the refinery in St. Croix at the start of the heating oil buildup season resulted in the loss of 50,000 bpd of heating oil; most of that would have been shipped to the East Coast, where consumption is concentrated. Ending stocks for March 1990 were projected at 90 million barrels, close to the lowest in recent history. And yet, because of improved inventory management, supplies were not expected to be critically tight. According to the National Petroleum Council, the minimum distillate inventory level below which U.S. operating problems and shortages would appear had

dropped to about 85 million barrels in 1988 from 105 million in 1983.

However, cold weather in West Germany and a low water level on the Rhine, disrupting barged heating oil shipments from inland refineries, drove European heating oil prices sharply higher in December 1989. That raised questions about the availability of supplies for export to the U.S. A drawdown in inventories in West Germany in anticipation of more OPEC oil production and lower prices, coupled with Soviet production problems, also contributed to a tightening market.

The U.S. market firmed, as December temperatures dropped to all-time lows. The American Petroleum Institute reported December distillate demand at 4.022 million bpd, up 13 percent from December 1988. Gas pipelines diverted supplies to home heating, and electric utilities had to switch to distillate and residual fuel oil to power their boilers, exacerbating tight supplies. Rack prices, the wholesale truck price charged the retail home heating oil dealer, topped 70 cents/gal. in mid-December 1989. By December 29, the New York harbor barge price was as high as 119 cents. Home delivery prices rose to a peak of 154.9 cents in New York City. The January 1990 futures contract traded at an all-time high of 110 cents before it expired on Dec. 29.

Futures Markets

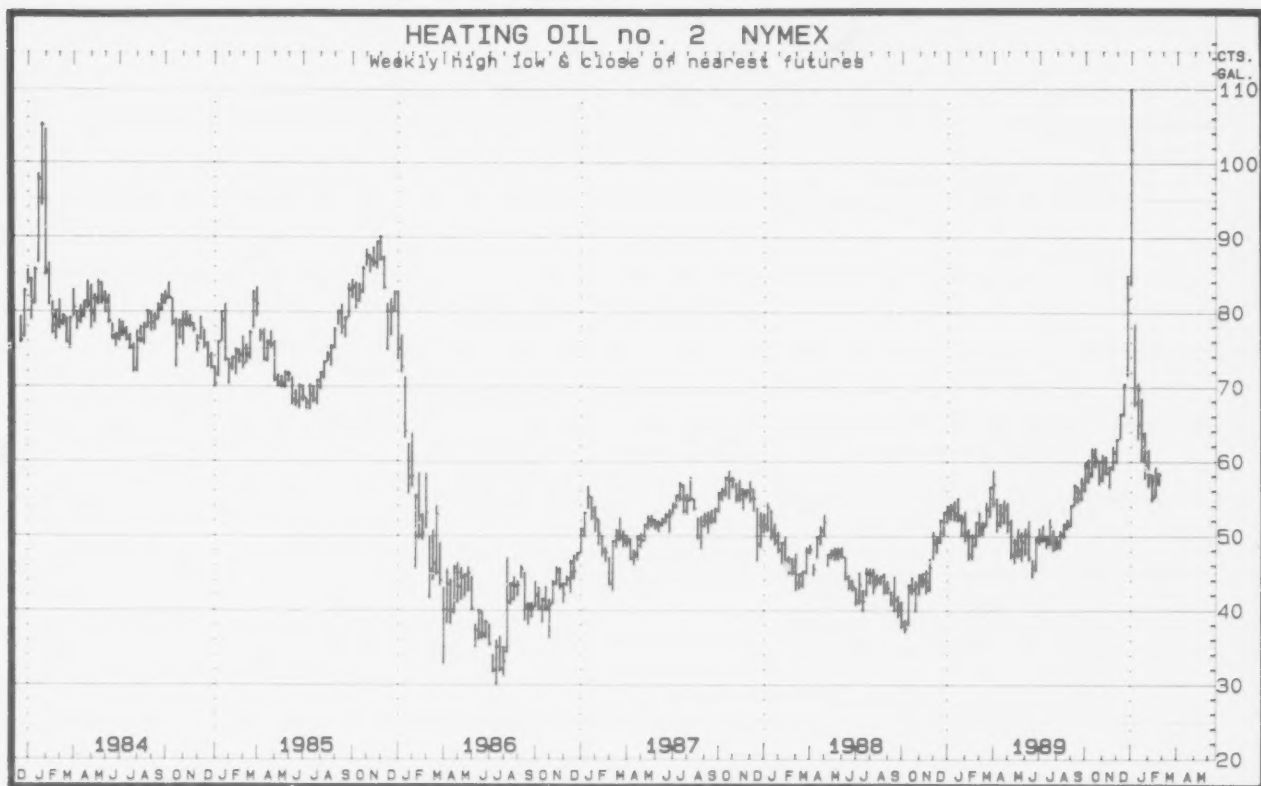
Heating oil futures and options on those futures are traded on the New York Mercantile Exchange (NYMEX). In London, where the product is called gas oil, futures and options on those futures are traded on the International Petroleum Exchange.

High, Low & Closing Prices of January Heating Oil Futures (No. 2) in N.Y. In Cents per Gallon

Year of Delivery	Year Prior to Delivery ¹												Life of Delivery Range
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec. ¹	
1984 High	—	—	75.25	84.25	83.75	87.00	88.90	90.15	87.55	84.15	84.10	85.55	90.15
Low	—	—	68.70	78.50	79.25	81.80	85.25	86.30	82.00	80.20	77.10	75.80	68.70
Close	—	—	74.60	82.49	81.80	86.20	88.90	86.52	82.50	82.16	77.44	84.24	—
1985 High	—	—	83.75	84.40	87.45	87.40	83.25	84.05	86.10	85.45	81.05	79.25	87.45
Low	—	—	83.15	82.30	82.20	81.75	76.05	76.90	80.80	75.75	74.75	72.25	72.25
Close	—	—	83.75	83.00	86.87	83.00	76.30	82.55	84.80	79.98	76.61	72.40	—
1986 High	—	—	76.90	79.10	76.50	75.50	74.85	79.35	83.50	88.25	90.75	87.45	90.75
Low	—	—	76.70	75.50	74.10	70.00	70.35	73.15	76.55	80.30	85.15	74.80	70.00
Close	—	—	76.10	76.00	76.25	71.40	73.55	79.35	82.49	87.52	87.07	86.55	—
1987 High	57.60	54.00	46.15	44.65	47.10	44.45	40.70	47.80	49.00	46.25	46.75	49.20	57.60
Low	56.50	44.50	37.60	36.20	41.60	40.20	33.85	36.40	33.53	38.95	41.90	42.35	33.53
Close	56.50	44.50	37.60	41.33	41.60	41.33	36.20	47.36	44.57	43.08	42.89	48.90	—
1988 High	—	50.15	52.60	53.24	55.05	57.50	60.25	60.20	55.95	58.70	56.90	57.30	60.25
Low	—	49.02	48.75	50.85	52.70	54.35	56.50	50.75	52.00	55.10	52.80	46.60	46.60
Close	—	49.02	52.32	52.70	54.60	57.30	58.30	54.36	55.49	57.19	54.87	51.44	—
1989 High	—	47.00	48.60	51.89	50.73	50.85	48.65	47.90	45.64	45.35	48.60	53.90	53.90
Low	—	45.27	44.21	47.42	48.68	44.48	43.60	44.90	39.85	38.25	41.50	47.75	38.25
Close	—	45.65	48.02	50.59	50.41	44.48	47.28	45.10	40.02	42.48	48.24	53.48	—
1990 High	—	49.45	55.39	54.50	52.00	54.58	54.50	54.90	59.45	61.70	62.04	110.00	110.00
Low	—	47.89	49.06	50.95	49.01	48.00	51.00	50.65	54.35	57.20	56.75	61.75	47.89
Close	—	49.35	53.67	51.98	51.30	52.44	51.43	54.85	59.39	58.93	61.81	101.87	—

¹ Contract expires the last business day of the previous calendar month quoted. Source: N.Y. Mercantile Exchange

HEATING OIL



Month-End Open Interest of Heating Oil Futures (No. 2) in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	11,792	12,040	13,256	14,893	17,919	16,822	19,220	28,102	36,996	35,519	33,517	31,585
1982	22,042	15,655	21,121	18,502	19,248	21,277	21,676	20,815	22,500	29,614	24,486	21,848
1983	19,642	23,307	18,980	22,868	27,797	29,320	34,414	32,276	37,856	36,164	36,230	30,916
1984	32,596	18,900	17,738	16,617	18,343	18,109	19,813	20,290	28,995	27,200	26,798	25,371
1985	19,122	16,552	17,351	15,796	17,660	19,698	22,993	25,731	30,127	33,438	36,793	31,172
1986	29,066	31,685	33,377	33,760	40,977	55,945	67,625	64,450	74,104	82,224	70,196	72,564
1987	64,374	53,307	46,624	42,902	41,538	49,470	49,208	64,636	65,904	70,432	73,856	63,427
1988	55,136	48,366	44,201	46,143	52,477	74,926	72,297	84,564	88,956	96,150	82,868	74,797
1989	66,675	58,929	55,343	53,995	41,877	52,933	62,392	82,474	92,077	91,209	102,093	97,947

Source: N.Y. Mercantile Exchange

T.279

Volume of Trading of Heating Oil Futures¹ in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	67,368	58,514	55,299	65,350	58,933	76,580	86,394	100,102	99,790	121,455	78,972	126,749	995,532
1982	165,079	148,794	176,373	146,821	98,440	135,181	107,102	118,496	120,830	167,439	177,832	183,139	1,745,526
1983	153,864	112,649	137,237	121,300	163,923	149,138	138,706	140,671	187,283	169,271	200,400	193,877	1,868,322
1984	254,788	209,802	144,326	144,041	161,689	144,182	120,668	153,913	137,011	281,183	182,005	163,938	2,091,546
1985	286,264	149,403	162,503	137,064	122,699	133,339	148,117	157,552	202,785	246,558	219,126	242,323	2,207,733
1986	274,057	221,156	214,501	207,748	223,943	247,552	309,662	282,636	285,246	387,054	271,497	349,992	3,275,044
1987	399,813	328,327	348,204	282,109	238,048	273,708	329,078	343,355	347,152	437,157	422,982	543,462	4,293,395
1988	506,182	377,379	403,181	267,233	286,365	380,550	431,231	363,276	441,939	578,648	475,675	423,356	4,935,015
1989	534,041	422,660	430,447	372,640	334,973	445,822	372,388	402,420	475,402	554,733	574,693	820,748	5,740,967

¹ No. 2 heating oil. Source: N.Y. Mercantile Exchange

T.280

HEATING OIL

U.S. Gross Input to Crude Oil Distillation Units in Millions of 42-Gallon Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1977	453.4	425.5	456.2	438.3	463.1	457.9	471.1	465.9	457.8	466.3	449.2	463.5	5,468
1978	450.1	401.4	448.3	426.6	472.4	451.5	470.5	483.8	462.2	475.9	470.6	487.6	5,501
1979	467.7	409.3	449.6	445.2	457.1	453.6	477.9	474.0	447.1	457.9	447.0	472.4	5,459
1980	453.6	421.7	433.8	413.5	423.4	421.7	422.5	412.3	408.2	402.9	403.4	432.4	5,049
1981	418.3	369.6	391.4	368.5	389.3	381.9	389.6	409.2	382.2	382.9	377.5	393.8	4,654
1982	371.5	325.1	361.4	353.1	379.1	388.1	399.6	378.0	376.7	376.8	364.4	368.8	4,443
1983	355.4	307.8	344.8	352.0	374.4	378.3	390.9	383.1	381.9	371.1	366.8	354.1	4,361
1984	364.8	356.0	374.2	362.3	385.5	372.5	377.5	388.6	374.2	376.7	367.7	371.0	4,471
1985	359.1	321.6	356.0	359.1	380.3	372.7	392.6	378.9	362.9	383.3	378.9	395.1	4,440
1986	390.1	337.9	364.5	378.1	412.7	400.4	403.3	415.2	395.7	395.3	387.8	400.3	4,681
1987 ¹	392.8	346.6	378.1	377.9	397.3	399.2	422.0	419.3	399.8	399.8	392.2	414.9	4,746
1988 ¹	408.3	374.3	410.5	399.9	422.5	411.1	427.9	432.2	400.7	412.4	400.6	420.2	4,922
1989 ¹	418.8	364.3	407.9	393.9	420.4	421.6	432.6	434.7	416.7				

¹ Preliminary. Source: Bureau of Mines

T.282

Refiner Sales Prices of Products for Resale (excluding taxes) ¢ per gal. Residual Fuel Oil (Sulfur one % or less) to end users

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1985	71.2	71.1	69.8	67.5	61.2	59.9	58.9	57.1	62.8	63.6	61.7	62.6	64.4
1986	62.0	49.0	42.7	36.8	35.0	32.3	27.4	29.3	31.5	31.9	33.7	37.7	37.2
1987	45.5	43.8	43.4	43.9	44.9	45.8	48.3	46.0	44.0	44.5	45.0	41.4	44.7
1988	41.9	40.2	36.9	35.8	36.8	35.3	35.7	36.0	34.7	34.4	36.1	38.8	37.2
1989 ¹	41.7	39.8	41.8	46.6	46.5	42.8	42.1	39.4	40.2				
1990													
No. 2 Fuel Oil													
1985	75.7	75.2	76.1	79.3	76.5	72.9	70.3	72.1	77.0	81.7	84.9	83.2	77.6
1986	73.6	56.4	51.9	45.9	45.2	40.0	34.8	40.0	41.6	41.0	42.4	44.2	48.6
1987	50.6	49.3	49.0	49.4	51.5	52.6	54.9	55.1	53.3	56.7	57.0	54.2	52.7
1988	52.0	48.9	47.6	50.7	50.1	46.6	43.3	44.3	43.3	41.9	45.1	49.9	47.3
1989 ¹	53.2	51.0	54.4	56.5	52.5	49.6	50.3	51.2	56.4				
1990													
No. 2 Diesel Fuel													
1985	74.9	74.2	75.6	79.2	78.9	75.5	72.3	72.5	76.3	80.5	84.3	82.1	77.2
1986	73.3	56.1	47.4	46.3	44.2	39.6	34.0	38.8	41.8	40.9	41.9	43.4	45.2
1987	49.5	49.6	48.7	49.7	52.1	53.1	55.1	57.1	56.0	58.1	57.9	53.8	53.4
1988	51.0	49.0	49.2	51.9	51.3	47.9	44.0	45.0	44.7	42.0	44.6	48.0	47.3
1989 ¹	51.1	52.9	56.0	59.9	54.1	51.0	50.6	52.5	58.6				
1990													
Kerosine—Type Jet Fuel													
1985	79.6	79.5	78.9	79.4	78.2	76.1	75.2	76.8	79.2	81.6	83.6	83.1	79.4
1986	77.9	67.7	58.6	50.0	47.5	44.5	40.1	39.8	42.5	43.4	43.7	45.2	49.5
1987	49.0	49.7	49.1	50.2	51.6	52.7	55.3	57.0	55.9	58.0	58.6	55.6	53.8
1988	53.2	52.4	50.4	50.4	51.4	51.0	47.5	47.9	46.9	45.2	46.4	50.1	49.5
1989 ¹	56.3	55.2	56.5	59.4	56.6	54.5	53.5	54.4	58.6				
1990													
Propane (Consumer Grade)													
1985	40.1	39.3	38.0	37.9	38.1	37.0	36.3	36.5	37.6	39.7	43.0	46.8	39.8
1986	44.0	35.4	29.2	27.3	28.5	28.3	25.3	24.6	24.8	25.1	24.3	23.6	29.0
1987	25.0	24.4	23.6	24.4	24.0	23.6	24.4	25.6	26.1	26.8	27.1	26.0	25.2
1988	26.8	26.6	25.6	25.2	24.9	24.3	21.8	22.1	22.5	22.1	22.1	22.9	24.0
1989 ¹	24.0	22.7	22.5	22.6	22.1	21.3	20.7	21.6	23.1				

¹ Preliminary. Source: Energy Information Administration

HEATING OIL

Stocks of Distillate Fuel in the U.S., First of the Month In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Residual Fuel Oil Stocks	
													Jan. 1	July 1
1980	228.7	212.4	191.7	177.9	177.2	183.4	196.6	213.8	226.3	232.4	225.7	222.4	95.6	87.8
1981	205.4	179.4	172.6	164.4	164.6	171.8	179.9	186.3	200.2	207.3	201.2	200.1	91.5	69.4
1982	191.5	164.4	147.4	126.3	108.0	113.6	123.7	148.2	158.7	161.2	170.1	185.6	78.0	60.7
1983	178.6	167.6	148.2	118.1	103.1	108.9	113.7	130.7	142.4	154.0	162.6	161.2	66.2	49.9
1984	140.3	119.3	132.2	109.6	97.7	98.1	112.8	124.4	133.3	142.9	152.2	161.0	48.5	46.9
1985	161.1	142.4	121.4	99.3	96.8	104.4	109.7	115.7	113.8	117.4	123.4	139.7	53.0	39.6
1986	143.7	136.5	112.4	98.8	95.9	98.9	107.9	118.9	137.7	152.4	151.6	158.3	50.4	42.8
1987 ¹	155.1	141.4	123.5	110.0	100.4	101.8	104.4	114.6	124.7	126.8	121.0	128.0	47.4	41.3
1988 ¹	134.5	127.2	109.6	89.3	94.3	104.5	110.7	119.4	125.2	131.0	128.2	128.8	47.4	42.1
1989 ¹	123.5	120.3	107.5	96.6	98.4	99.3	99.4	115.4	116.1	122.2			44.6	44.8

¹ Preliminary. Source: Bureau of Mines

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U.S. Production of Distillate Fuel Oil In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	93.4	80.2	79.3	73.8	76.7	79.4	83.4	76.3	80.6	80.3	81.1	89.6	974.1
1981	92.6	78.6	77.0	72.5	76.1	75.0	74.2	82.3	78.3	77.0	81.5	88.6	953.8
1982	80.3	67.9	70.9	70.7	81.2	81.9	84.8	77.7	79.7	88.0	85.8	82.3	951.3
1983	72.0	59.8	61.8	65.1	75.8	76.4	80.7	81.1	82.2	83.1	80.4	78.2	896.5
1984	80.3	83.1	76.8	70.3	81.3	86.4	84.3	82.5	81.2	83.4	84.8	86.7	981.2
1985	81.6	70.1	70.3	74.7	83.3	79.4	82.0	80.4	77.8	90.0	93.1	98.4	980.9
1986	89.9	71.8	81.9	83.6	88.6	81.9	84.0	90.6	86.0	84.2	87.5	91.2	1,021.2
1987 ¹	86.0	72.1	73.9	76.6	79.5	80.7	83.7	83.9	82.4	86.2	91.1	100.5	996.6
1988 ¹	93.2	77.8	84.3	86.1	90.9	86.8	86.3	88.2	83.4	87.6	87.3	95.1	1,046.3
1989 ¹	92.2	78.4	84.1	83.6	85.2	84.3	88.2	90.1	88.5				

¹ Preliminary. Source: Dept. of Energy

T.286

U.S. Imports of Distillate Fuel Oil In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	5.5	6.9	6.0	4.6	3.9	3.2	3.6	2.4	3.0	3.6	4.0	5.2	51.9
1981	8.5	9.1	4.6	3.5	5.5	6.7	5.5	5.4	3.9	3.7	3.7	2.9	63.1
1982	3.0	3.7	1.5	1.8	2.3	3.1	3.9	2.5	1.8	2.8	4.4	3.4	34.0
1983	2.1	1.6	1.3	2.2	4.5	5.4	8.3	9.3	7.8	8.1	6.1	6.8	63.5
1984	9.3	13.2	3.6	6.6	7.8	7.7	6.2	8.0	8.7	13.0	9.5	5.9	99.4
1985	8.4	4.0	4.8	7.6	6.1	4.6	3.0	2.5	6.7	8.1	8.4	8.9	73.1
1986	10.1	4.7	6.7	4.4	4.6	5.1	9.7	11.5	7.8	7.5	7.6	10.5	90.3
1987 ¹	6.1	6.4	7.8	5.5	6.2	7.4	11.7	6.6	6.6	7.3	5.6	11.7	93.2
1988 ¹	11.0	9.6	7.5	6.3	7.1	6.3	6.4	8.4	8.7	10.4	9.8	12.7	110.4
1989 ¹	10.2	9.0	13.6	9.0	9.0	7.0	10.4	7.9	7.3				

¹ Preliminary. Source: Dept. of Energy

T.287

U.S. Domestic Consumption of Distillate Fuel Oil In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	115.1	107.6	98.5	79.0	74.5	69.5	69.7	66.2	77.6	90.5	88.5	112.1	1,049.0
1981	127.4	94.5	90.0	76.0	74.7	73.9	73.7	74.0	75.4	86.9	86.4	99.6	1,032.5
1982	108.0	86.4	91.3	89.3	75.8	73.5	63.8	68.8	75.2	80.0	74.2	88.5	974.9
1983	86.7	77.8	91.4	80.9	73.0	75.7	70.4	77.3	77.3	80.9	86.2	104.3	981.9
1984	109.3	82.2	101.0	87.8	87.2	77.8	77.6	79.3	79.6	85.7	84.8	88.8	1,041.2
1985	107.4	93.2	95.9	83.9	80.8	77.8	75.5	81.7	77.3	89.9	82.4	100.9	1,046.8
1986	103.2	95.7	98.2	87.1	85.6	76.3	80.4	81.2	76.2	90.3	86.3	103.2	1,063.7
1987 ¹	101.0	93.7	93.1	90.1	82.8	83.7	84.1	79.2	85.1	97.7	88.0	102.9	1,086.4
1988 ¹	109.0	101.8	109.9	86.1	85.5	84.6	82.1	88.6	84.2	99.8	95.5	110.4	1,142.5
1989 ¹	102.2	95.5	106.3	89.2	91.7	89.9	80.3	92.1	87.2				

¹ Preliminary. Source: Dept. of Energy

T.288

Hides and Leather

Cattle hide prices declined slightly in 1989, after reaching record highs in 1988. World production of bovine hides and skins was forecast at 4.59 million tonnes for the year, down slightly from the 1988 level. Production of hides is a function of cattle slaughter, and the recent downturn in slaughter has resulted in declining hide output. The leading producer of hides in 1989 was the USSR, with slightly higher production than the U.S., 1988's leader. Soviet production of hides and skins rose by 16 percent during the 1985-89 period. U.S. hides and skins output in 1989 was forecast at 1.08 million tonnes, slightly below the year-earlier level. Other major producers were the EC, Brazil, and Argentina.

World consumption of cattle hides and skins in 1989 was expected to be 4.8 million tonnes, about the same as the year earlier. The largest market for cattle hide leather was the non-rubber footwear industry. An estimated 55 percent of U.S. leather shipments, by value, consisted of footwear in 1989. The fastest growing leather product markets in the U.S. were automotive and furniture upholstery leather. During the 1982-87 period, this category's share of leather product shipments rose from 7 percent to 21 percent. Other major uses of cattle hide leather included luggage and handbags.

The U.S. was the largest exporter of hides and skins in 1989, shipping an estimated 590,000 tonnes, about half of world exports. The USSR was

expected to be the second largest exporter in 1989, while the EC also shipped a significant amount. South Korea was the largest single importer of hides in 1989. The U.S. share of the South Korean market was 77 percent in 1988, down from as much as 90 percent in earlier years. The EC continued to increase market share after South Korea lifted a ban on EC cattle hide imports in 1988.

Japan and Taiwan were also large markets for U.S. cattle hides. Slaughter levels in Japan fell in 1989, while consumption of hides was expected to remain steady, resulting in higher reliance on imports. The EC and Canada boosted their shares of the Pacific Rim market in 1989, because U.S. prices of hides were less competitive.

The U.S. also imported a large quantity of leather made from hides and leather products. Leather imports, on a value basis, were about 2 percent lower in 1989 than a year earlier. Argentina supplied about 25 percent of the total, while other major suppliers were Brazil and the EC. The U.S. imported non-rubber footwear from more than 90 countries in 1989. Taiwan provided about 33 percent of the U.S. import market in this category. Although world trade in non-rubber footwear has been declining, that has been somewhat offset by growth in demand for leather upholstery.

Hide supplies were expected to remain tight in 1990, and leather prices were likely to be firm.

World Production of Bovine Hides and Skins In Thousands of Units of Metric Tons

Year	Argentina	Australia	Brazil	Canada	Colombia	France	Germany		Mexico	Italy	Poland	South Africa	Turkey	New Zealand	United Kingdom	United States	USSR
1981	333	142	291	96			EC-10 (683)					52		44		987	890
1982	293	155	308	98	92	179	44	149	138	96	75	53	56	46	106	1,019	867
1983	286	160	322	99	84	200	45	149	140	99	70	61	59	44	109	1,040	892
1984	297	129	310	94	87	190	45	164	145	101	73	60	60	37	113	1,066	917
1985	319	124	340	94	92	190	48	159	139	101	71		61	41	110	1,028	942
1986	332	131	324	92	92	186	48	161	120	95	86		62	36	104	1,164	1,022
1987	314	144	350	85	86	193	50	162	122	93	80		62	54	105	1,109	1,060
1988 ¹	303	139	390	82	93	184	50	151	176	91	80		63	45	98	1,099	1,090
1989 ²	293	131	380	81	98		EC-12 (702)		222		77					1,079	1,090

¹ Preliminary. ² Forecast. Source: Foreign Agricultural Service, U.S.D.A.

T.289

Salient Statistics of Hides & Leather in the United States

Year	New Supply of Cattle Hides					Wholesale Prices—¢ lb.		Production		Upper & Lining Leather Exports Ths. Sq. Ft.	Wholesale Leather Indexes		Footwear						
	Domestic Slaughter					Heavy Native Cows ²	Heavy Native ³ Steers	All U.S. Tanning in Ths. Equiv. Hides	Cattle-Hide Ths. Equiv. Hides		Upper		Pro duction ⁵ — Mil. Pairs —	Ex port					
	Feder ally Inspected	Unin- spected ⁴	Total Pro duction	Net Ex ports	Total New Supply						Men	Women							
															Thousands of Equivalent Hides				
															— 1982 = 100 —				
1981	32,819	2,134	34,953	18,701	16,252	46.1	44.2	19,184	15,520	192,193			372.0	9.7					
1982	33,907	1,936	35,843	22,553	13,290	45.1	42.3	18,229	15,028	159,804			359.1	7.7					
1983	34,816	1,833	36,649	21,205	15,444	53.5	50.2	18,610	15,430	155,808			339.2	6.2					
1984	35,880	1,702	37,582	25,194	12,388	67.0	61.0	16,940	14,021	163,373			303.2	6.2					
1985	34,765	1,528	36,293	24,398	11,895	57.55	54.69	15,230	12,550	131,505			265.1	9.2					
1986 ¹	35,913	1,375	37,288	26,522	10,766	68.06	64.09	14,460	12,497	160,888	107.2	104.3	240.9	10.3					
1987 ¹	34,468	1,179	35,647	24,007	11,640			14,800	12,846	194,152	111.4	107.2	230.0	14.7					
1988 ¹	34,048	1,031	35,079	24,527	10,552			13,375	11,569	215,358	121.3	112.5	235.1	18.4					

¹ Preliminary. ² Heifers. ³ Central U.S. ⁴ Includes farm slaughter; diseased & condemned animals & hides taken off fallen animals. ⁵ Other than rubber. Sources: Leather Industries of America; Bureau of Labor Statistics; Dept. of Commerce

T.290

HIDES AND LEATHER

U.S. Exports of Upper & Lining Leather In Thousands of Square Feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	15,769	16,873	18,710	13,024	12,652	15,483	15,481	15,215	15,818	19,051	20,880	13,641	192,597
1981	19,633	14,418	19,717	17,678	18,016	18,692	13,921	10,918	15,393	12,682	19,464	11,660	192,193
1982	10,849	10,343	13,696	15,534	17,449	18,610	18,486	12,065	10,417	11,842	9,726	10,786	159,804
1983	11,052	12,453	15,078	15,200	13,492	14,868	12,013	13,099	12,715	14,027	12,400	9,412	155,808
1984	13,624	13,015	17,787	14,772	19,514	14,294	12,907	14,046	11,219	11,533	10,231	10,431	163,373
1985	10,266	8,855	11,049	11,637	12,112	16,233	9,919	10,763	8,085	12,310	12,452	7,824	131,505
1986	12,032	10,849	13,050	13,652	14,560	13,945	11,902	16,769	11,502	13,043	14,003	15,581	160,888
1987 ¹	12,172	15,625	19,865	18,874	18,818	19,585	15,455	15,015	14,806	13,557	15,703	14,677	194,152
1988 ¹	16,033	18,431	18,430	14,647	19,273	17,623	15,023	13,967	21,022	22,556	15,835	22,519	215,358

¹ Preliminary. Source: Leather Industries of America

T.292

U.S. Production of All Footwear (Shoes, Sandals, Slippers, Athletic, Etc.) In Millions of Pairs

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	33.3	33.2	33.9	32.9	34.1	32.5	27.3	30.7	32.5	36.2	29.5	28.6	386.3
1981	31.1	30.4	34.1	32.6	31.6	30.0	26.8	30.4	32.6	34.7	30.3	27.4	372.0
1982	29.4	30.2	34.4	30.0	31.0	31.0	26.1	30.7	31.4	31.2	28.4	25.3	359.1
1983	27.7	31.6	31.3	26.9	29.8	28.4	22.4	30.2	29.3	28.9	27.6	24.8	339.2
1984	27.3	29.1	30.2	27.7	28.6	24.6	20.7	26.0	21.9	25.2	22.3	19.6	303.2
1985	22.5	21.0	22.2	22.2	24.9	21.1	19.7	24.5	22.4	24.8	21.1	18.7	265.1
1986	22.5	21.6	21.3	21.2	20.8	18.4	18.4	20.9	19.8	21.5	18.4	16.6	240.9
1987 ¹	17.3	18.4	19.4	19.0	18.4	20.0	15.6	19.9	20.6	20.3	18.0	14.8	230.0
1988 ¹	15.3	19.4	20.2	17.9	18.6	18.3	13.9	19.5	21.3	21.2	21.3	17.6	235.1
1989 ¹	18.1	18.5	19.6	16.6	18.7	17.5	13.7	19.2					

¹ Preliminary. Source: U.S. Department of Commerce

T.295

U.S. Imports and Exports of All Cattle Hides In Thousands of Hides

Year	Imports		U.S. Exports—By Country of Destination												Total
	Total	From Canada	Total	Canada	France	W. Germany	Japan	Mexico	Netherlands	Poland	Taiwan	Spain	Romania	Korea Repub.	
1979	673	643	23,731	1,248	691	454	7,396	2,428	324	513		892	1,317	2,526	682
1980	880	859	19,512	1,046	238	206	7,476	1,972	164	522		112	1,046	2,653	318
1981	1,028	881	19,703	1,212	137	319	7,512	2,485	94	203		394	680	3,579	486
1982	658	592	23,175	1,041	478	671	6,469	1,882	280	790		643	939	4,572	415
1983	665	570	21,281	1,235	332	343	6,413	1,296	174	303		246	1,318	4,635	489
1984	711	669	25,029	1,072	292	252	7,334	1,858	221	319	2,697	242	1,032	5,423	669
1985	1,044	883	24,956	729	215	110	6,824	2,287	71	402	2,797	214	1,168	6,441	418
1986	761	594	26,481	666	262	71	6,624	1,002	133	179	3,542	190	688	9,316	521
1987	490	335	23,921	830	151	54	5,956	1,427	50	39	3,166	143	308	10,062	311
1988 ¹	642	477	25,169	759	93	97	7,140	1,865	100	58	2,493	142	624	9,986	249

¹ Preliminary. Source: Leather Industries of America

T.297

Average Factory Price of Footwear in the United States In Dollars Per Pair

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	9.73	9.84	9.68	10.23	10.00	10.48	11.74	10.31	10.30	10.46	11.15	11.47	10.60
1980	11.67	11.83	11.81	12.27	12.16	11.37	11.40	11.94	11.08	11.25	11.45	11.41	11.63
1981	11.67	11.93	12.52	12.72	13.09	13.16	13.01	13.14	13.22	12.90	12.67	12.58	12.52
1982	12.96	12.32	12.49	12.74	12.76	13.30	14.13	13.34	13.12	13.10	13.56	14.08	13.14
1983	12.88	13.72	13.18	13.54	14.20	13.57	12.91	14.14	14.06	15.02	14.69	15.55	13.96
1984	14.95	14.19	14.00	14.99	15.20	14.43	14.88	14.59	15.11	14.56	15.00	15.62	14.79
1985	15.24	14.97	14.10	14.87	14.86	15.35	14.24	14.55	14.12	13.71	13.56	15.13	14.56
1986	14.60	13.86	13.82	14.22	15.00	14.98	15.53	14.38	14.64	14.38	14.40	16.50	14.69
1987	15.09	14.58	14.05	15.15	15.89	15.63	16.47	15.60	15.63	15.23	15.89	17.96	15.60
1988	16.57	14.80	13.88	15.97	13.77	14.46	17.27	14.92	15.32	15.18	14.98	16.73	15.24
1989 ¹	16.30	15.70	15.35	17.29	16.13	16.83	16.74	17.56	17.78	17.56			

¹ Preliminary. Source: Leather Industries of America

T.298

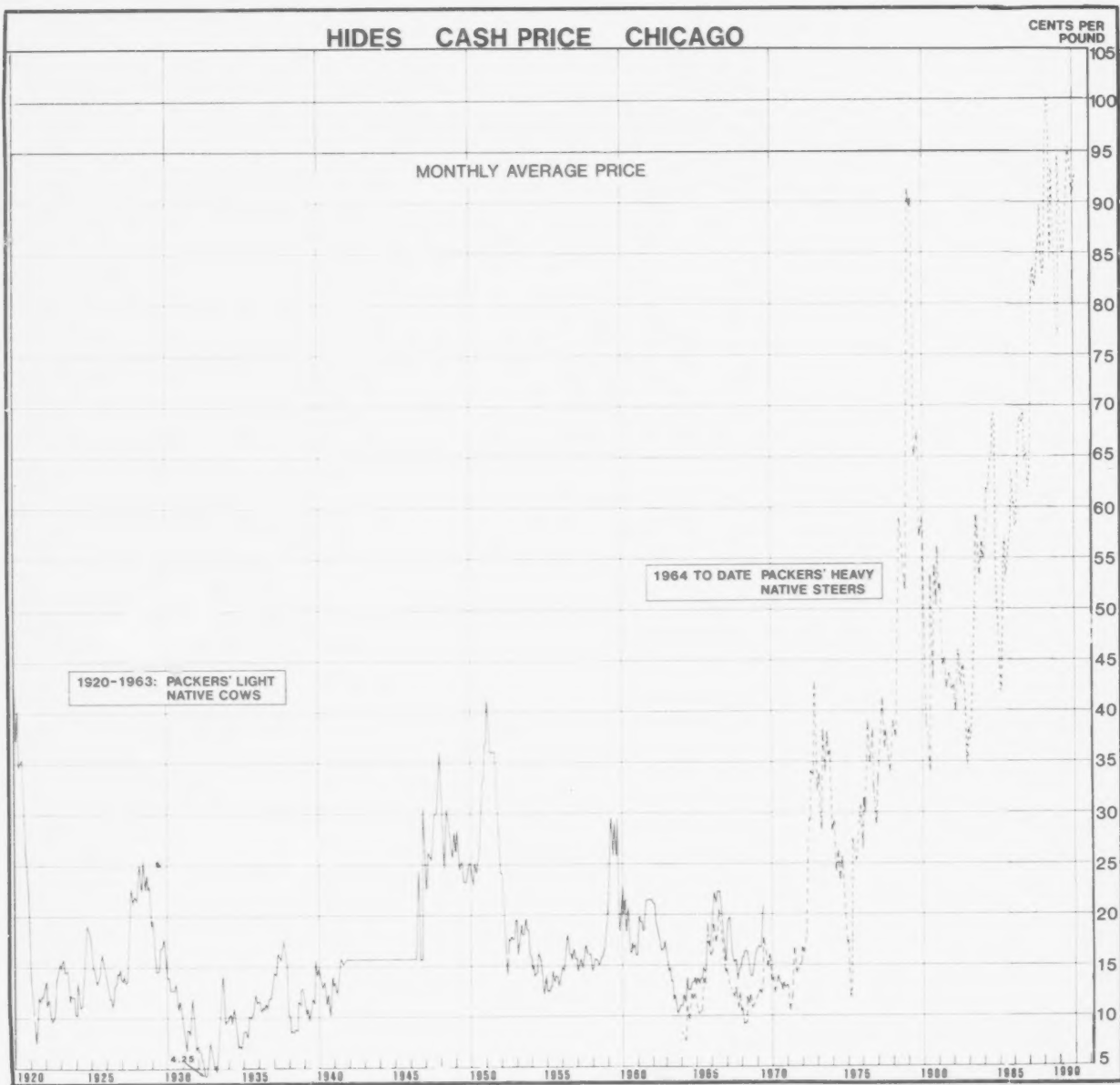
HIDES AND LEATHER

Wholesale Price of Hides (Packer Heavy Native Steers)—F.O.B. Chicago In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	353.6	346.0	325.8	339.3	353.5	342.1	342.1	349.7	343.5	336.4	324.7	312.9	339.1
1983	313.9	315.0	329.6	345.0	378.6	386.8	434.2	N.A.	447.5	450.2	469.9	489.6	396.4
1984 ¹	54.8	56.0	62.0	61.7	64.5	64.7	66.5	69.2	68.9	61.7	52.5	47.9	60.9
1985	46.0	41.7	45.5	54.7	57.0	53.1	54.0	55.7	57.1	57.6	63.5	60.8	53.9
1986	57.7	58.4	57.7	63.1	68.6	68.7	68.3	69.9	64.5	65.9	65.2	61.8	64.2
1987	61.8	64.2	69.7	82.4	83.5	81.7	82.5	83.8	89.0	89.9	85.4	83.7	79.8
1988	82.9	86.3	97.4	100.0	99.2	87.6	84.2	93.7	87.3	80.5	77.1	76.7	87.7
1989	84.0	87.4	94.6	87.5	85.2	85.0	90.3	91.7	95.9	94.7	92.9	90.9	90.0

¹ Data prior to 1984 are for the index 1967 = 100. Source: Bureau of Labor Statistics (0411-0111.99); Wall St. Journal; CRB.

T.296



Hogs

Pork production in 1989 totaled about 15.9 million pounds, up 2 percent from a year earlier. Early estimates for 1990 placed pork production at 15.7 million pounds. However, the inventory of all hogs and pigs as of September 1, 1989 was 51.4 million head, 1 percent above the year-earlier level. In the ten major producing states the inventory of 45.8 million head was up 2 percent from a year before--and was the largest for that date since 1983. The late-1989 statistics indicated that pork production in 1990 could be larger than expected, at least through the first half of the year. The decline was likely to be more evident in the second half.

Farrowings in Dec. 1989-May 1990, which is the crop that will produce most of the hogs to be slaughtered in second-half 1990, were initially expected to be under the year-earlier level. Although hog prices soared in late 1989, in general it was not a good year for producers. Moreover, 1990 was expected to show a combination of slow growth in consumer disposable income and an increase in overall per capita red meat and poultry supplies, suggesting increased competition for the consumer dollar. Increases in pork exports, which were expected, would help to offset negative domestic demand for red meat. Average hog prices in the mid-\$40/cwt. area in first-quarter 1990 could cause producers to hold production in check.

In 1989, the 7-market average price of barrows and gilts was about \$42/cwt. For 1990, initial forecasts focused on \$43/cwt. Retail pork prices, however, could average a few cents higher than the

\$1.80/lb. seen in 1989.

U.S. pork exports were strong during the first half of 1989, totaling 121 million pounds, 42 percent over the comparable 1988 level. Japan and Mexico were the major buyers. Japan is the primary U.S. pork customer. The changes in Eastern Europe in 1989 could open that area as a major market for U.S. pork. This possibility helped buoy pork prices during the second half of 1989. The U.S. government bought several million pounds of pork bellies in 1989 as part of a food aid package to Poland. Yugoslavia was a buyer of U.S. pork bellies during the year.

The U.S. also imports pork products and live hogs. Canada and Denmark are the major exporters to the U.S. In 1989, pork imports totaled about one billion pounds, carcass weight, and an equal to slightly higher quantity was expected in 1990.

Futures Markets

Live hog futures are traded on the Chicago Mercantile Exchange (CME) and the Mid America Commodity Exchange. Options are traded on the CME contract. In late 1989, the CME proposed changes in the hog contract that would lift it to 40,000 pounds of live hogs from the current 30,000 pounds and would boost average deliverable par weights to 230-260 pounds from the current 210-240 range. If approved by the CFTC, the new contract would go into effect in 1991.

World Hog Numbers in Specified Countries as of January 1 In Millions of Head

Year	Brazil	Canada	Denmark	France	W. Germany	Hungary	Italy	Japan	Mexico	Philippines	Poland	Spain	China ³	Un. Kingdom	United States	USSR	World
1983	33.5	10.1	9.5	11.7	22.5	9.0	9.1	10.3	16.5	8.0	17.6	11.7	300.8	8.2	54.5	76.7	701.5
1984	30.0	10.3	9.0	11.3	23.4	9.8	9.2	10.4	13.1	7.6	15.9	15.0	298.5	7.8	56.7	78.7	703.4
1985	30.0	10.6	9.0	11.0	23.6	9.2	9.0	10.7	12.3	7.3	17.2	15.0	306.8	7.8	54.1	77.9	708.6
1986	30.5	10.0	9.1	11.0	24.3	8.3	9.1	11.1	13.1	7.3	19.2	15.8	331.4	7.9	52.3	77.8	735.2
1987	31.7	10.0	9.4	12.1	24.5	8.7	9.3	11.4	12.4	7.1	19.6	15.8	337.2	8.0	50.9	79.5	748.3
1988	31.7	10.7	9.0	11.9	23.7	8.2	9.4	11.7	10.9	7.6	19.4	16.9	327.7	7.9	54.6	77.4	741.7
1989 ¹	33.2	10.8	9.1	11.9	22.7	8.3	9.4	11.9	9.0	7.8	20.2	16.3	342.2	7.6	55.5	78.1	756.0
1990 ²	32.7	10.7	9.3	11.6	22.9	8.1	9.5	11.9	8.3	7.9	19.4	16.3	332.0	7.6	55.7	78.5	742.5

¹ Preliminary. ² Forecast. ³ Mainland. Source: Foreign Agricultural Service, U.S.D.A.

T.300

Salient Statistics of Pigs and Hogs in the U.S.

Year	Pig Crop				Total Pig Crop	Value of Hogs on Farms, Dec. 1		Hog Marketings Ths. Head	Quantity Produced (Live Wt.) Mil. Lbs.	Value of Production Mil. \$	Hogs Slaughtered in Thousand Head						
	Spring ²		Fall ³			Total Pig Crop	Commercial										
	Sows Farrowed	Pigs Saved	Sows Farrowed	Pigs Saved			Total Pig Crop				\$ Per Head	Total Million \$	Federally Inspected	Other	Total	Farm	Total
	In Thousands of Head																
1983	6,301	47,409	6,176	45,785	93,194	58.80	3,331	89,129	21,195	9,899	84,762	2,823	87,584	517	88,101		
1984	5,694	42,403	5,857	44,183	86,586	75.00	4,056	87,344	20,196	9,498	82,478	2,690	85,168	473	85,641		
1985	5,571	42,546	5,667	43,490	86,036	69.60	3,640	86,694	20,164	8,871	81,973	2,519	84,492	446	84,938		
1986	5,246	40,445	5,423	42,126	82,571	91.90	4,679	82,738	19,415	9,556	77,290	2,309	79,598	358	79,956		
1987	5,579	43,496	5,810	44,927	88,423	76.00	4,133	84,153	20,419	10,427	78,913	2,168	81,081	341	81,422		
1988 ¹	6,030	46,883	6,036	46,000	92,883	66.30	3,678				85,516	2,222	87,738				
1989 ⁴	6,014	47,032	5,777	44,852	91,884	79.10	4,258				87,100	2,350	89,450				

¹ Preliminary. ² December-May. ³ June-November. ⁴ Estimate. Source: Statistical Reporting Service, U.S.D.A.

T.302

HOGS

Hogs and Pigs on U.S. Farms on December 1 In Thousands of Head

Year	Georgia	Illinois	Indiana	Iowa	Kansas	Kentucky	Minnesota	Missouri	Nebraska	No. Carolina	Ohio	South Dakota	Tennessee	Wisconsin	Total
1981	1,520	6,450	4,100	16,300	1,770	1,040	4,300	3,400	4,100	1,980	2,050	1,710	900	1,380	58,698
1982	1,450	5,600	4,400	14,400	1,670	960	4,000	3,500	3,800	2,150	1,920	1,580	750	1,220	54,534
1983	1,350	5,400	4,200	15,000	1,650	1,000	4,400	3,600	4,000	2,350	2,200	1,730	950	1,280	56,694
1984	1,200	5,400	4,300	14,200	1,600	880	4,300	3,450	3,700	2,300	1,970	1,600	1,100	1,300	54,073
1985	1,150	5,400	4,150	13,500	1,520	800	4,100	3,050	3,900	2,350	1,980	1,610	950	1,250	52,314
1986	1,100	5,000	4,150	12,600	1,420	880	4,260	2,850	3,950	2,360	2,000	1,520	770	1,300	51,001
1987	1,175	5,400	4,600	14,100	1,470	900	4,500	3,000	4,050	2,550	2,150	1,560	820	1,320	54,384
1988	1,210	5,600	4,300	14,000	1,500	1,090	4,690	2,850	4,150	2,700	2,210	1,810	1,000	1,275	55,469
1989 ¹	1,200	5,700	4,350	13,500	1,450	975	4,450	2,700	4,200	2,570	2,080	1,720	700	1,250	53,852

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.301

Quarterly 10—U.S. State Hogs & Pigs Report In Thousands of Head

Year ²	Invent ¹	Breed ¹	Mar ¹	Farr ¹	Pig Crop	Year	Invent ¹	Breed ¹	Mar ¹	Farr ¹	Pig Crop
1986	41,100	5,258	35,842	8,223	63,835	1988 ³	42,995	5,510	37,485	9,316	71,848
I	41,100	5,258	35,842	1,863	14,254	I	42,995	5,510	37,485	2,123	16,489
II	38,210	4,948	33,262	2,161	16,878	II	41,345	5,520	35,825	2,578	20,175
III	38,075	4,870	33,155	2,074	16,164	III	44,065	5,630	38,435	2,359	18,007
IV	39,585	4,895	34,690	2,115	16,460	IV	45,000	5,460	39,540	2,261	17,295
1987 ³	39,690	5,110	34,580	8,538	68,888	1989 ³					
I	39,690	5,110	34,580	1,916	14,840	I	43,210	5,335	37,875	2,109	16,439
II	38,370	5,215	33,155	2,352	18,601	II	41,605	5,420	36,185	2,575	20,256
III	40,995	5,340	35,615	2,284	17,692	III	44,100	5,560	38,540	2,380	18,604
IV	43,150	5,310	37,840	2,266	17,572	IV	45,800	5,385	40,415	2,275	

¹ Beginning of period. ² Quarters are Dec. preceding year—Feb. (I), Mar.—May (II), June—Aug. (III), & Sept.—Nov. (IV). ³ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.181a

U.S. Federally Inspected Hog Slaughter In Thousands of Head

Week ended	1986	1987	1988	1989	Week ended	1986	1987	1988	1989
Jan. 1 ¹	1,153	1,069			July 2	1,118	1,193	1,537	1,500
5	1,250	1,258			9	1,390	1,360	1,330	1,233
Jan. 9 ¹	1,675	1,683	1,726	1,416	16	1,349	1,345	1,537	1,558
16	1,654	1,659	1,766	1,721	23	1,281	1,354	1,542	1,518
23	1,563	1,527	1,605	1,681	30	1,314	1,330	1,456	1,501
30	1,506	1,500	1,543	1,644	Aug. 6	1,338	1,372	1,528	1,543
Feb. 6	1,526	1,455	1,535	1,631	13	1,369	1,445	1,571	1,612
13	1,512	1,502	1,545	1,656	20	1,402	1,404	1,513	1,610
20	1,501	1,395	1,542	1,675	27	1,419	1,475	1,563	1,610
27	1,606	1,533	1,595	1,665	Sept. 3	1,257	1,548	1,607	1,713
Mar. 5	1,635	1,556	1,610	1,619	10	1,492	1,363	1,517	1,545
12	1,650	1,578	1,674	1,716	17	1,504	1,709	1,807	1,888
19	1,556	1,574	1,639	1,702	24	1,504	1,621	1,868	1,852
26	1,579	1,504	1,631	1,601	Oct. 1	1,521	1,658	1,803	1,785
Apr. 2	1,518	1,529	1,599	1,648	8	1,555	1,640	1,830	1,810
9	1,633	1,553	1,573	1,761	15	1,528	1,720	1,838	1,809
16	1,651	1,468	1,655	1,767	22	1,551	1,664	1,845	1,797
23	1,619	1,393	1,660	1,813	29	1,580	1,763	1,895	1,739
30	1,637	1,453	1,695	1,764	Nov. 5	1,576	1,792	1,908	1,812
May 7	1,607	1,475	1,654	1,732	12	1,537	1,778	1,827	1,791
14	1,560	1,440	1,634	1,658	19	1,557	1,772	1,920	1,901
21	1,518	1,448	1,577	1,629	26	1,308	1,463	1,562	1,564
28	1,310	1,232	1,533	1,618	Dec. 3	1,530	1,845	1,956	1,908
June 4	1,471	1,385	1,323	1,343	10	1,548	1,879	1,887	1,832
11	1,459	1,372	1,489	1,577	17	1,503	1,729	1,800	1,716
18	1,373	1,341	1,513	1,589	24	1,069	1,150	1,668	1,470
25	1,330	1,356	1,503	1,533	31	1,258	1,458	1,420	1,446

¹ Corresponding dates—1985: Jan. 12, 1985; 1986: Jan. 11, 1986; 1987: Jan. 10, 1987. Source: Economic Research Service, U.S.D.A.

T.181b

HOGS

Average Wholesale Price of Hogs, Average (All Weights) at Sioux City In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	50.14	46.68	47.36	48.69	48.22	50.04	54.25	52.57	47.86	45.01	48.55	49.03	49.03
1985	49.60	49.55	44.54	41.85	42.70	45.67	47.09	43.91	40.42	44.20	44.46	47.11	44.98
1986	45.60	43.80	41.08	40.59	46.43	54.95	61.59	63.66	59.59	54.86	54.44	52.02	50.73
1987	47.56	49.08	48.67	52.10	55.79	61.37	62.69	60.56	55.19	49.28	40.74	41.56	47.11
1988	44.59	47.45	43.19	42.28	47.75	48.26	45.60	45.98	41.28	38.92	36.52	40.58	43.25
1989	41.64	41.11	39.88	37.22	42.40	46.24	47.26	47.04	44.58	47.49	47.21		

Source: Department of Agriculture

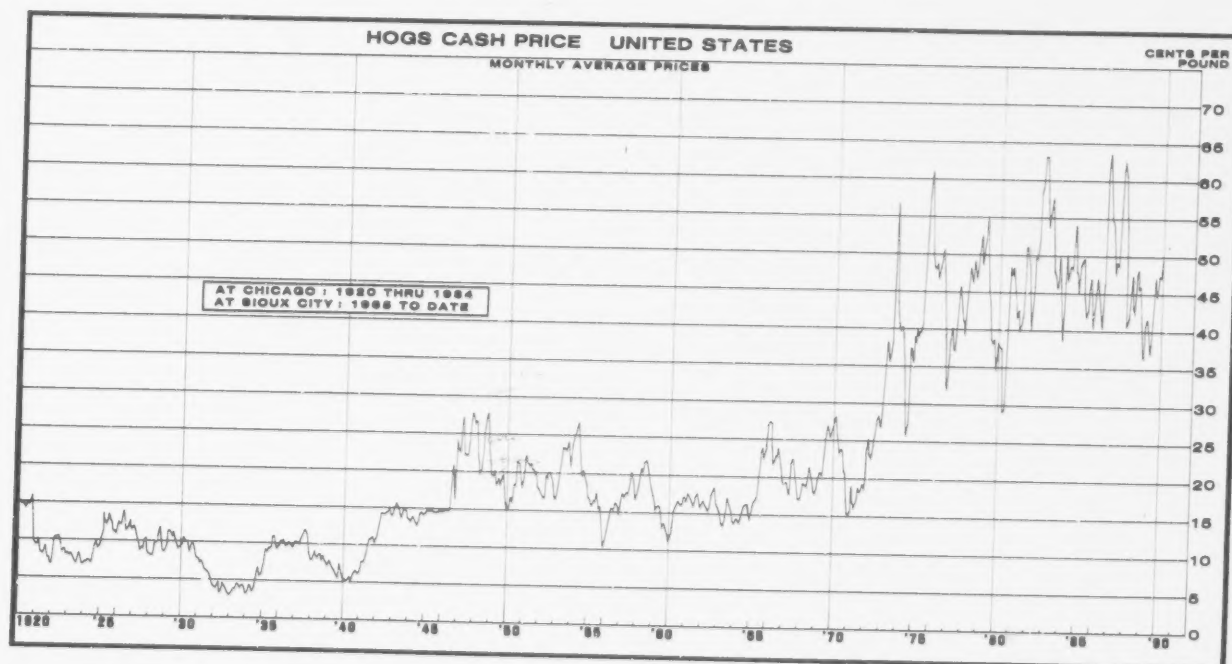
T.307

High, Low & Closing Prices of June Live Hogs Futures at Chicago In Cents per Pound

Year of Delivery	Year Prior to Delivery										Delivery Year						Life of Delivery Range
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June		
1985 High	53.75	55.20	55.40	54.40	53.15	53.25	51.10	53.67	54.95	54.95	54.22	52.90	49.97	49.20	50.10	55.40	
	Low	52.62	53.65	52.60	50.10	50.80	48.65	48.40	50.70	50.25	53.05	50.65	49.05	46.15	44.40	46.70	
	Close	53.60	54.32	54.15	51.00	52.70	48.77	50.95	52.95	54.57	53.85	51.65	49.57	46.30	47.95	49.35	
1986 High	48.95	48.65	49.00	47.60	44.40	43.75	43.97	44.70	46.45	47.00	45.50	45.90	46.87	50.10	59.72	59.72	
	Low	47.55	46.80	46.90	41.75	40.05	39.80	42.25	42.20	43.25	43.65	42.10	42.05	40.25	45.52	49.75	
	Close	48.70	48.25	47.75	43.57	40.82	43.00	42.65	44.65	45.85	45.27	42.80	43.82	46.60	49.77	59.65	
1987 High	43.30	44.75	46.67	48.00	49.50	59.20	49.40	48.70	49.10	47.85	48.25	48.85	54.80	58.85	64.10	64.10	
	Low	39.90	39.90	40.60	43.80	46.10	41.20	46.00	45.45	45.50	44.90	44.60	45.60	46.45	52.60	57.85	
	Close	40.97	40.85	44.95	47.45	47.45	48.25	46.70	48.47	45.62	47.82	45.50	47.82	53.47	58.17	64.00	
1988 High	41.50	43.00	43.72	44.65	45.05	45.30	44.50	43.15	42.70	49.17	50.35	51.65	52.15	54.95	54.70	54.95	
	Low	38.50	40.65	40.70	42.15	43.65	42.72	41.25	41.35	40.25	41.90	46.65	45.57	48.10	48.90	48.30	
	Close	40.95	42.45	41.20	44.55	44.70	43.30	41.82	41.85	42.00	46.95	46.65	49.30	48.80	54.77	50.45	
1989 High	44.60	46.80	56.25	54.80	50.10	49.90	49.35	48.95	50.50	50.80	48.67	49.22	47.20	49.30	49.40	56.25	
	Low	42.50	44.35	46.75	46.90	47.20	46.70	47.60	45.50	46.85	46.60	46.17	45.95	44.67	46.45	46.90	
	Close	44.40	46.70	54.20	47.52	47.27	49.10	48.40	47.05	49.57	48.15	48.20	46.47	46.62	47.92	49.15	
1990 High	47.70	48.15	48.70	47.75	46.20	47.50	48.20	50.67	49.90								
	Low	46.90	46.40	46.75	44.75	44.25	45.20	46.50	47.55	46.90							
	Close	47.37	47.60	48.60	44.80	45.87	47.40	47.75	49.42	48.62							

Source: Chicago Mercantile Exchange

T.308



HOGS

Average Price Received by Farmers for Hogs in the U.S. In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average ¹
1984	48.40	45.40	45.80	47.50	47.20	49.00	52.00	50.50	46.30	43.60	47.00	48.60	47.61
1985	48.00	48.30	43.60	41.20	41.40	44.60	45.70	42.50	39.70	43.10	43.20	45.30	43.88
1986	44.30	42.80	40.40	39.70	45.80	52.60	59.00	62.10	58.30	53.10	52.80	50.60	50.10
1987 ²	47.20	48.20	47.40	50.80	54.40	59.20	59.60	58.60	54.30	48.90	40.60	40.30	50.80
1988 ²	43.00	45.80	42.20	41.90	46.30	47.10	44.10	44.70	40.70	38.70	36.20	39.70	42.50
1989 ²	40.90	40.40	39.30	36.90	41.60	45.10	45.90	45.70	43.40	46.30	45.00	48.90	43.30

¹ Weighted average by quantities sold. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.306

Hog-Corn Price Ratio¹ at Omaha

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	16.0	15.3	14.5	14.5	14.3	14.8	16.6	16.8	16.0	16.4	18.4	19.6	16.1
1985 ²	18.8	18.7	16.4	15.2	15.7	16.9	17.9	18.2	17.1	19.5	19.3	19.8	17.8
1986 ²	19.0	19.0	17.6	17.2	19.5	22.4	30.3	39.3	42.9	39.0	34.7	33.4	27.8
1987 ²	32.7	35.1	32.6	32.7	31.6	34.3	38.4	41.3	36.3	31.0	24.3	23.8	32.8
1988 ²	25.0	25.7	23.0	22.5	24.3	18.9	16.8	17.8	15.9	14.9	14.7	16.2	19.6
1989 ²	16.4	16.3	15.4	14.8	16.8	18.5	19.6	20.9	19.8	20.8	20.1	21.7	18.4

¹ Ratio computed by dividing average price packer and shipper purchases of barrows and gilts by average price No. 2 yellow corn both at Omaha. This ratio represents the number of bushels of corn required to buy 100 pounds of live hogs. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.304

Cold Storage Holdings of Frozen Pork¹ in the U.S. on First of Month In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	300.6	295.1	311.7	350.7	390.4	437.7	405.2	345.0	269.5	256.6	275.6	269.4
1985	274.3	291.9	286.3	314.1	368.2	410.3	385.0	343.1	294.7	277.0	277.5	265.0
1986 ²	229.4	235.4	239.1	253.5	282.0	275.6	247.7	214.9	184.7	185.9	215.8	206.2
1987 ²	197.1	217.7	228.5	221.8	217.8	218.8	189.2	181.1	175.1	186.2	212.2	251.7
1988 ²	285.5	291.5	308.2	345.8	397.3	388.6	362.8	337.2	287.0	288.0	320.8	361.3
1989 ²	357.9	380.5	396.9	394.5	438.4	431.3	383.1	345.0	280.6	280.0	275.5	280.9

¹ Excludes lard. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.303

Federally Inspected Hog Slaughter in the United States In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	6,947	6,591	7,578	6,953	7,153	6,392	5,806	6,628	6,439	7,908	7,354	6,729	82,478
1985	7,114	6,208	6,932	7,177	7,364	6,209	6,399	6,810	6,738	7,566	6,818	6,640	81,974
1986	6,968	6,158	6,662	7,160	6,703	5,894	5,918	5,799	6,323	7,083	6,064	6,558	77,290
1987 ¹	6,723	5,886	6,786	6,492	5,916	5,987	6,019	6,018	6,855	7,519	7,121	7,583	78,913
1988 ¹	6,803	6,519	7,505	6,929	6,713	6,715	6,199	7,101	7,534	7,887	7,908	7,703	85,516
1989 ¹	7,116	6,619	7,569	7,199	7,277	6,881	6,131	7,392	7,493	7,823	7,815		

¹ Preliminary. Source: Statistical Reporting Service, U.S.D.A.

T.305

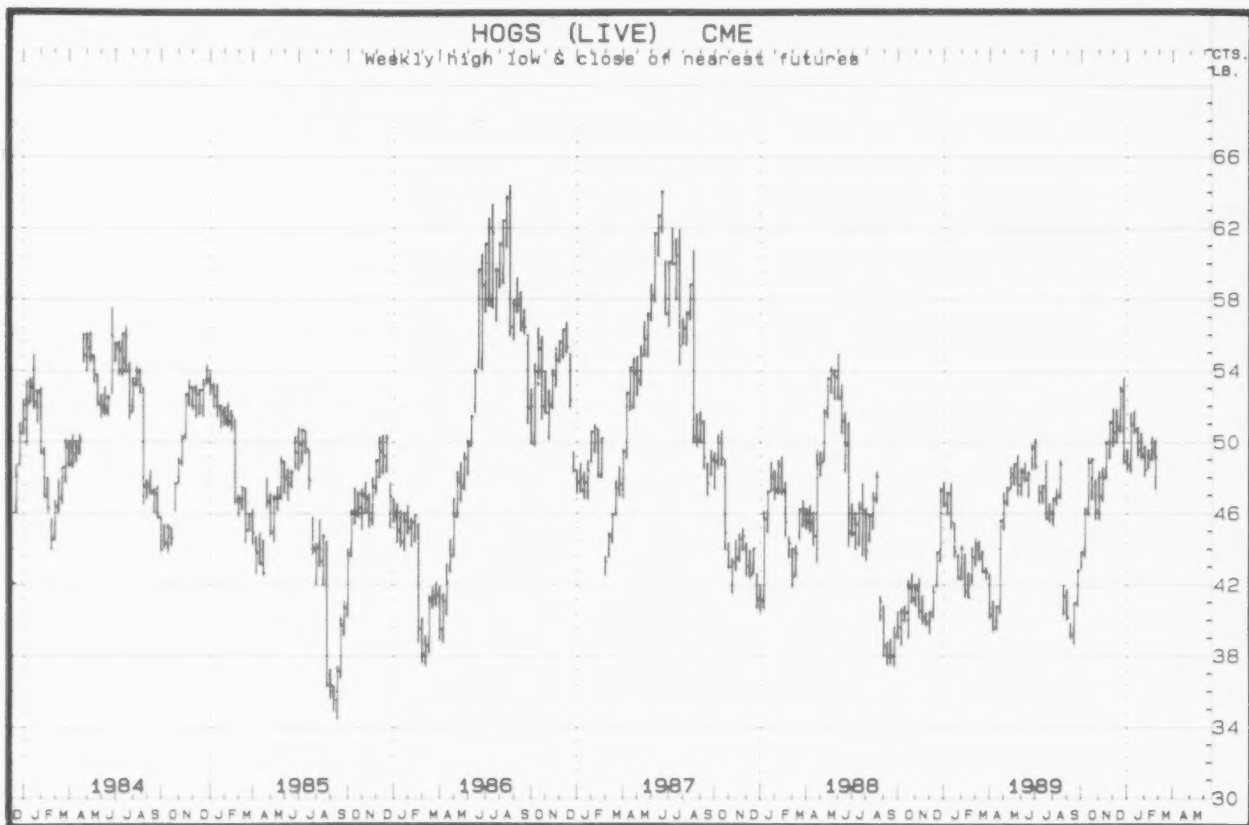
Average Live Weight of All Hogs Slaughtered Under Federal Inspection In Pounds Per Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average ¹
1984 ²	242	241	240	243	246	247	245	242	240	243	246	244	243.5
1985 ²	245	242	242	245	247	248	245	243	242	246	248	247	245.0
1986 ²	246	244	244	245	246	245	245	244	245	248	250	252	246.2
1987 ²	251	248	246	247	247	248	246	244	246	249	252	250	247.8
1988 ²	248	247	247	249	250	250	249	247	248	251	253	251	249.2
1989 ²	249	247	247	251	251	251	247	247	246	248	251		

¹ Average is weighted by federally inspected slaughter. ² Preliminary. Source: Department of Agriculture

T.311

HOGS



Month-End Open Interest of Live Hogs Futures at Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	21,267	21,588	20,767	28,147	31,149	26,639	19,557	20,944	23,471	21,945	22,294	17,924
1982	27,528	29,960	43,387	51,056	63,760	46,002	42,884	51,530	48,263	48,751	47,067	43,791
1983	45,184	41,338	39,469	31,915	31,014	30,794	27,173	33,668	33,425	30,049	30,071	33,820
1984	33,049	35,159	35,289	33,122	34,148	30,517	23,579	24,061	21,048	20,689	26,975	24,037
1985	29,917	27,827	25,738	23,673	22,919	24,807	18,289	19,984	18,390	25,447	27,912	21,680
1986	22,125	21,639	17,123	19,037	25,497	26,878	32,704	32,643	32,479	27,447	30,980	23,620
1987	26,472	29,973	29,961	30,406	35,328	30,485	30,336	32,489	32,347	24,111	26,017	23,740
1988	29,251	30,540	29,212	27,844	35,073	26,335	23,986	28,228	27,402	33,330	33,762	33,064
1989	31,446	29,881	25,971	29,556	27,806	26,884	23,966	25,945	30,875	31,531	35,694	25,777

Source: Chicago Mercantile Exchange

T.309

Volume of Trading of Live Hogs Futures at Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	174.8	182.0	197.5	212.0	230.7	262.9	179.8	153.9	171.9	178.6	160.2	153.7	2,258.1
1982	178.7	195.6	262.6	222.6	288.0	408.3	300.1	344.5	347.2	383.4	324.9	305.1	3,561.0
1983	291.6	254.7	213.8	230.6	254.1	262.1	217.4	279.9	220.8	174.2	197.5	194.2	2,790.7
1984	232.2	212.7	243.8	172.3	211.0	192.6	189.2	143.9	109.1	140.7	181.0	140.5	2,169.0
1985	155.0	128.3	160.2	141.7	156.2	141.9	134.7	120.2	136.1	156.8	145.2	143.5	2,719.9
1986	156.3	108.5	113.7	153.6	157.4	160.8	224.3	168.8	196.5	183.4	171.0	142.5	1,936.7
1987	159.2	138.5	172.7	190.3	189.7	212.1	219.5	169.8	174.0	175.5	121.1	118.0	2,040.5
1988	172.9	143.0	172.4	137.6	169.6	267.0	171.4	140.3	160.7	150.3	166.8	156.7	2,008.8
1989	188.2	135.0	152.8	130.7	175.2	147.5	141.9	131.8	149.6	181.5	205.9	151.6	1,891.9

Source: Chicago Mercantile Exchange

T.310

Honey

Honey production in ten major countries in 1989 was forecast at 691,370 tonnes, up marginally from the revised 1988 harvest. These ten countries provide approximately two-thirds of the world's total honey output, according to the U.N. Food and Agriculture Organization (FAO).

In the USSR, the largest honey producer, output in 1989 was forecast at 225,000 tonnes, 5,000 tonnes above 1988. The country's private sector, which provides 65 percent of total production, accounted for the gain.

China was expected to produce 180,000 tonnes of honey in 1989, 24,000 more than the previous year. An expansion in colonies rather than an increase in yield explained the increase. Mexico's outturn was projected to rise from the drought-affected levels of 1987 and 1988. In 1989, the country's production was likely to reach 52,500 tonnes, compared with 46,140 in 1988.

In the U.S., honey production in calendar 1989 was forecast to total 205 million pounds, or 6.5

million less than the 1988 crop. Colony numbers in 1989 were expected to be lower, due largely to mite damage and the 1988 drought. Colonies were likely to gradually increase in 1990 and 1991.

The U.S. is a net importer of honey, and imports in 1989 were forecast at 54 million pounds, down from 56 million in 1988. U.S. per capita honey consumption was estimated at one pound, little changed since 1984.

The national average support loan rate for honey in 1989 was 56.36 cents/lb. Price support is available to producers through nonrecourse loans which mature nine months later.

Under the lower loan repayment option, producers may repay loans for 1989 at less than the price support loan rate. These rates are established to minimize loan forfeitures, reduce honey stocks, lower storage costs, and maintain the competitiveness of domestic honey in U.S. and world markets.

World Production of Honey In Thousands of Metric Tons

Year	Argentina	Australia	Brazil	Canada	China (Mainland)	Ethiopia	France	West Germany	Japan	Mexico	Poland	Spain	Turkey	United States	U.S.S.R.	World Total
1978	35.0	18.6	16.0	30.6	75.0	20.0	9.5	15.0	8.5	54.0	12.0	11.0	21.7	104.5	179.0	827.7
1979	30.0	25.0	18.0	32.9	110.0	20.0	14.4	9.9	7.5	52.0	13.0	12.0	23.7	107.8	159.0	880.1
1980	33.0	19.5	20.0	29.2	81.0	20.5	12.0	13.5	6.2	60.0	10.0	13.0	23.0	90.6	183.0	837.4
1981	30.0	24.8	24.0	32.9	110.0	21.0	10.0	14.0	6.0	60.0	10.0	13.0	23.0	84.3	184.0	873.8
1982	33.0	22.4	25.0	30.5	136.0		25.0	18.0	7.4	45.0				104.3	186.0	908.8
1983	30.0	25.0	25.0	38.8	143.3			19.0	6.9	68.0				93.0	210.0	970.0
1984	35.0	28.0	25.0	43.3	140.0			16.0	6.8	60.0				75.0	193.0	622.1 ²
1985	45.0	26.9	28.0	36.1	150.0			11.0	7.2	56.0				68.0	204.0	632.2 ²
1986	36.0	25.1	27.0	34.0	160.0			16.0	5.6	54.0				90.9	210.0	658.6 ²
1987	44.0	28.0	30.5	39.8	204.0			16.0	6.0	47.9				102.9	219.2	738.3 ²
1988 ¹	46.0	27.5	36.0	36.8	156.0			18.0	4.9	46.1				95.9	220.0	687.3 ²
1989 ¹	38.0	27.5	38.0	31.5	180.0			18.0	6.0	52.5				74.8	225.0	691.4 ²

¹ Preliminary. ² Only for countries listed. Source: Foreign Agricultural Service, U.S.D.A.

T.312

Salient Statistics of Honey in the United States

Year	Number of Colonies Thous.	Yield Per Colony Lbs.	Honey Production: By States								Imports For Con- sump- tion	Domestic Ex- ports	Stocks Jan. 1	Pro- ducer Price	National Average Price Support	Per Capita Consump- tion Lbs.		
			Total U.S.	Cali- fornia	Florida	Iowa	Minne- sota	So.- Dak.	Texas	Wis- consin								
																	In Millions of Pounds	
															\$ Lb.			
1978	4,081	56.7	231.5	31.2	23.9	4.6	13.9			8.7	6.3	277.3	56.0	8.0	30.0	48.3	36.8	1.25
1979	4,155	57.4	238.7	17.1	27.3	6.6	15.8	17.3	11.4	8.8		282.7	58.6	8.8	32.2	53.1	43.9	1.26
1980	4,140	48.3	199.8	23.2	20.3	6.3	13.7	8.1	6.9	6.0		226.2	49.0	8.5	38.0	55.3	50.3	.99
1981	4,213	44.1	185.9	9.0	24.1	3.4	8.2	9.2	11.4	4.1		232.0	77.3	9.2	52.1	56.5	57.4	1.01
1982	4,250	54.1	230.0									250.8	92.0	8.5	74.1	56.8	60.4	1.08
1983	4,275	48.0	205.0									277.9	109.8	7.5	136.8	54.4	62.2	1.19
1984	3,200	38.4	165.0									251.8	128.7	7.6	194.8	49.5	65.8	1.0
1985	4,325	34.7	149.9									257.0	138.2	6.5	230.5	45.5	65.3	1.0
1986	3,205	62.0	200.4	27.0	21.8	2.4	10.6	22.7	7.3	4.3		283.4	120.0	9.2	255.2	51.3	64.0	1.0
1987 ¹	3,190	71.1	226.8	16.5	19.0	4.5	16.2	33.5	8.1	8.1		234.9	58.3	12.4	283.4	50.3	61.0	1.0
1988 ²	3,190		211.5									203.9	55.9	14.1	203.9	50.1	59.1	1.0
1989 ²	3,170		165.0									325.5	86.6	12.6	117.4		56.4	1.0

¹ Preliminary. ² Forecast. Source: Crop Reporting Board, U.S.D.A.

T.313

Interest Rates

The Fed's concern about stubbornly high U.S. inflation during 1989 kept monetary policy relatively tight for the year, despite signs that the economy was slowing. The M1 money supply (currency in circulation and checking accounts) actually declined at a 3.5 percent annual rate during the first six months of 1989; this contributed to a yield-curve inversion by forcing borrowers to pay more for short-term funds. M2 (which includes M1, money market accounts, and small time deposits) grew at a 1.9 percent rate in the first half, while real GNP grew about 2.5 percent, annualized, in the period.

Monetary tightness was relaxed later in the year; M1 grew at a 5.5 percent rate during the second half, and M2 grew at a 7.9 percent rate. For the year, M2 was up by 4.9 percent, within the Fed's target of 3 percent-7 percent. M1, for which there was no target, grew by 0.9 percent. The easier policy and slowing demand for commercial loans (at least among borrowers capable of repaying them) allowed the yield curve to flatten, as rates declined from their 1989 peaks in March. In May, the yield on 2-year Treasury notes went under the long bond's for the first time since 1987, and for the remainder of the year the entire yield curve was virtually flat.

The 30-year Treasury bond rewarded those patient enough to buy in January 1989 and hold on for the year, with a total return (interest and principal appreciation) of almost 19 percent. However, virtually all of the gains came during the second quarter, when the economy was showing signs of sinking and the dollar was steadily climbing to new 1989 highs against the Deutsche mark and the yen.

For the rest of 1989, the long bond yield was trapped within a very narrow range, from just below 8 percent to about 8.25 percent. Explanations for the stability, which resembled the bond markets

of the 1960s, ranged from expectations of lower inflation to an artificially tight supply of long bonds. The latter was blamed on periodic postponements of long bond auctions (because of failures to increase the federal debt ceiling in time) and on relentless demand for long bonds from coupon strippers, who turned them into zero-coupon securities for retirement accounts.

The relatively high rate for T-bills, especially late in the year, partly stemmed from additional borrowing at the weekly auctions for the S&L bailout. An additional \$20 billion in bills was sold between August and September to fund the initial actions of the Resolution Trust Corp. However, the demise of failed institutions that were paying above-market rates for CDs probably capped the bearish effects of the auctions on the bill market. The RTC was authorized to borrow some \$30 billion on its own; however, the total cost of paying off insured deposits at failed S&Ls was likely to approach \$200 billion.

The most spectacular event in the credit market during 1989 was the bursting of the junk bond bubble. Following defaults by Southmark and Integrated Resources earlier in the year, the collapse into Chapter 11 of the Campeau Corp.'s Allied and Federated department store chains ended thinking that a high enough yield would compensate for any credit risk.

Futures Markets

A futures contract now exists for almost every maturity on the yield curve and for municipal and commercial credit risks. The major U.S. contracts include: Eurodollar CDs and T-bills on the Chicago International Monetary Market, and T-bonds and municipal bonds on the Chicago Board of Trade.

U.S. Producer Commodity Price Index (Wholesale, All Commodities) 1982 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	100.2	100.5	100.4	100.4	100.8	101.0	101.3	101.8	102.0	102.2	102.1	102.3	101.3
1984	102.9	103.2	103.9	104.0	104.1	104.0	104.2	103.8	103.4	103.4	103.7	103.5	103.7
1985	103.4	103.3	103.1	103.3	103.5	103.3	103.2	102.7	102.1	102.9	103.4	103.6	103.2
1986	103.2	101.7	100.3	99.6	100.0	99.9	99.4	99.3	99.4	99.7	99.8	99.7	100.2
1987	100.5	101.0	101.2	101.9	102.6	103.0	103.5	103.8	103.7	104.1	104.2	104.2	102.8
1988	104.6	104.8	104.9	105.8	106.5	107.2	107.9	108.0	108.1	108.2	108.3	109.0	106.9
1989 ¹	110.5	110.8	111.5	112.3	113.2	112.9	112.8	112.0	112.3	112.7	112.7		

¹ Preliminary. Source: Bureau of Labor Statistics

T.315

U.S. Consumer Price Index (Retail Price Index for All Items: Urban Consumers) 1982-84 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	97.8	97.9	97.9	98.6	99.2	99.5	99.9	100.2	100.7	101.0	101.2	101.3	99.6
1984	101.9	102.4	102.6	103.1	103.4	103.7	104.1	104.5	105.0	105.3	105.3	105.3	103.9
1985	105.5	106.0	106.4	106.9	107.3	107.6	107.8	108.0	108.3	108.7	109.0	109.3	107.6
1986	109.6	109.3	108.8	108.6	108.9	109.5	109.5	109.7	110.2	110.3	110.4	110.5	109.6
1987	111.2	111.6	112.1	112.7	113.1	113.5	113.8	114.4	115.0	115.3	115.4	115.4	113.6
1988	115.7	116.0	116.5	117.1	117.5	118.0	118.5	119.0	119.8	120.2	120.3	120.5	118.3
1989 ¹	121.1	121.6	122.3	123.1	123.8	124.1	124.4	124.6	125.0	125.6	125.9		

¹ Preliminary. Source: Bureau of Labor Statistics

T.316

INTEREST RATES



Month-End Open Interest of 13 Wk.¹ Treasury Bill Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	45.7	38.0	32.8	28.9	35.6	38.9	45.7	43.6	32.3	38.7	36.2	30.1
1982	33.9	33.0	36.5	43.9	52.5	41.4	52.2	59.6	51.1	45.8	50.1	49.0
1983	47.7	46.8	38.6	44.6	43.8	40.4	45.1	39.9	47.8	51.2	52.4	40.8
1984	48.7	50.8	48.8	55.8	52.4	47.5	43.4	44.9	36.8	47.8	45.7	40.7
1985	48.3	46.3	39.4	40.9	36.4	33.7	38.0	36.8	32.9	40.0	39.8	33.3
1986	37.9	47.6	49.2	47.6	39.9	39.0	40.7	39.6	35.0	37.0	37.6	37.6
1987	46.1	48.5	38.6	33.0	27.1	24.2	25.0	24.6	21.1	27.2	23.4	18.8
1988	23.2	23.2	22.6	28.0	22.4	20.5	23.2	21.4	20.9	26.2	27.0	26.9
1989	27.4	26.1	22.5	20.4	20.6	24.0	22.0	21.6	26.1	34.2	36.1	34.4

¹ 90-day U.S. Treas. Bill. Source: International Monetary Market (Chicago)

T.322

Volume of Trading of 13 Wk.¹ Treasury Bill Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	446.6	414.4	408.5	407.6	426.1	511.0	487.8	482.0	525.8	516.0	509.5	496.5	5,631.3
1982	503.5	465.5	638.7	529.1	595.4	546.0	615.2	738.4	628.6	521.4	442.4	374.7	6,598.8
1983	302.2	337.9	361.4	308.5	331.4	366.2	283.9	371.1	273.5	309.8	275.7	268.5	3,790.0
1984	200.0	213.4	304.9	300.2	489.1	342.8	315.1	242.5	201.6	203.6	264.0	215.5	3,293.0
1985	231.3	245.4	314.5	217.9	206.2	205.6	180.6	165.8	206.8	159.9	142.1	138.1	2,413.0
1986	175.0	215.4	149.5	212.8	169.7	152.9	117.8	135.7	160.8	114.2	106.3	105.1	1,815.2
1987	137.9	218.8	151.8	197.6	207.8	125.5	97.5	125.4	110.1	262.2	161.0	131.6	1,927.0
1988	103.2	111.6	129.2	125.6	163.4	105.3	84.3	117.9	97.9	101.6	129.1	104.5	1,373.6
1989	109.6	146.5	143.2	119.2	126.3	101.4	89.3	126.9	135.9	149.1	130.1	124.9	1,502.4

¹ 90-day U.S. Treas. Bill. Source: International Monetary Market (Chicago)

T.323

INTEREST RATES



Month-End Open Interest of Treasury Bond Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	240.7	223.6	226.1	230.4	241.3	290.9	315.1	295.4	240.5	257.7	248.7	221.7
1982	216.2	192.9	184.4	193.0	181.8	160.6	158.1	162.7	159.0	160.4	175.7	182.9
1983	177.6	142.9	147.5	142.1	130.3	144.5	165.1	142.5	150.0	172.9	193.4	183.7
1984	170.7	163.0	158.4	173.8	192.3	191.5	192.3	193.0	188.8	244.6	230.5	202.5
1985	208.3	224.2	214.1	220.2	210.8	197.6	223.1	215.8	234.5	309.1	306.3	300.6
1986	321.8	301.9	244.7	240.1	209.7	195.4	214.1	181.2	207.4	232.4	229.2	229.3
1987	283.7	253.3	235.1	327.2	238.3	255.1	290.8	320.2	352.3	366.5	296.4	262.3
1988	312.0	315.5	310.9	345.0	358.1	379.9	473.0	467.3	478.6	470.7	441.2	361.7
1989	419.8	306.9	292.9	327.0	317.1	322.8	352.2	286.4	263.9	331.3	344.7	285.5

Source: Chicago Board of Trade

T.317

Volume of Trading of Treasury Bond Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	846.7	868.6	975.9	998.9	1,178.1	1,094.4	1,081.8	1,191.5	1,313.7	1,289.1	1,691.5	1,377.9	13,908.0
1982	1,266.4	1,306.1	1,413.9	1,259.4	1,408.2	1,254.8	1,145.5	1,669.5	1,474.4	1,644.0	1,545.2	1,352.3	16,739.7
1983	1,333.9	1,447.8	1,600.4	1,262.9	1,679.2	1,704.8	1,579.0	2,312.7	1,605.7	1,839.4	1,687.0	1,497.8	19,551
1984	1,475.7	1,891.3	2,629.4	2,068.7	3,373.8	2,593.9	2,691.7	2,792.2	2,556.6	2,924.2	2,781.2	2,184.9	29,963
1985	2,974	3,250	2,906	2,272	3,339	3,755	3,308	3,409	3,149	3,558	4,118	3,965	40,448
1986	4,640	5,220	4,445	5,115	4,783	4,486	4,114	4,175	4,638	3,853	3,595	3,534	52,599
1987	4,188	4,308	4,128	7,110	6,120	5,518	4,839	6,185	7,769	7,388	4,861	4,428	66,841
1988	5,550	5,765	6,088	4,984	5,570	7,495	5,133	6,346	5,641	6,136	6,431	5,171	70,307
1989	5,806	6,300	5,605	4,858	6,673	7,995	5,231	7,640	4,792	6,329	5,828	3,241	70,300

Source: Chicago Board of Trade

T.319

INTEREST RATES

High, Low & Closing Prices of June 5-Yr. T-Notes Futures in New York In 64ths of 100%

Year of Delivery	Year Prior to Delivery			Year Prior to Delivery			Year Prior to Delivery			Delivery Year			Life of Delivery Range	
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1988 High	—	—	97-25	95-35	96-44	97-24	97-28	99-55	101-06	100-53	99-17	98-18	98-48	101-06
Low	—	—	95-37	93-17	91-02	96-04	95-42	96-48	99-42	98-52	98-01	96-28	96-58	91-02
Close	—	—	95-38	93-17	96-22	96-41	97-15	99-51	100-39	99-09	98-10	96-45	97-21	—
1989 High	—	—	95-54	96-16	97-22	97-24	96-30	96-16	96-00	94-54	96-00	97-28	99-16	99-16
Low	—	—	94-05	94-27	96-55	95-17	95-07	94-49	94-08	93-20	94-08	95-14	97-16	93-20
Close	—	—	94-24	96-16	97-22	96-07	95-32	95-49	94-33	94-10	95-54	97-20	98-24	—
1990 High	—	—	100-20	—	100-34	100-57	101-20	100-36	98-47					
Low	—	—	99-14	—	100-22	100-43	100-13	97-56	97-28					
Close	—	—	99-14	—	100-34	100-57	100-26	98-26	98-13					

Source: N.Y. Cotton Exchange

T.326

Month-End Open Interest of 5-Yr. T-Notes Futures in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1987					2,559	5,508	4,883	3,903	5,312	2,250	6,618	2,590
1988	7,347	9,667	8,240	7,422	8,535	6,264	10,281	14,314	13,036	13,699	13,250	9,247
1989	12,115	16,989	15,383	17,090	15,468	5,427	5,548	6,088	4,131	5,646	6,590	4,547

Source: N.Y. Cotton Exchange

T.325

Volume of Trading of 5-Yr. T-Notes Futures in New York In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1987					30.9	43.9	38.5	52.3	73.4	59.8	45.9	37.8	383.6
1988	52.6	56.3	40.4	36.3	56.5	90.5	72.4	98.9	84.8	77.2	68.3	55.5	789.6
1989	43.0	60.8	54.0	36.7	44.6	47.9	34.2	41.9	33.9	27.9	30.7	13.0	465.6

Source: N.Y. Cotton Exchange

T.324

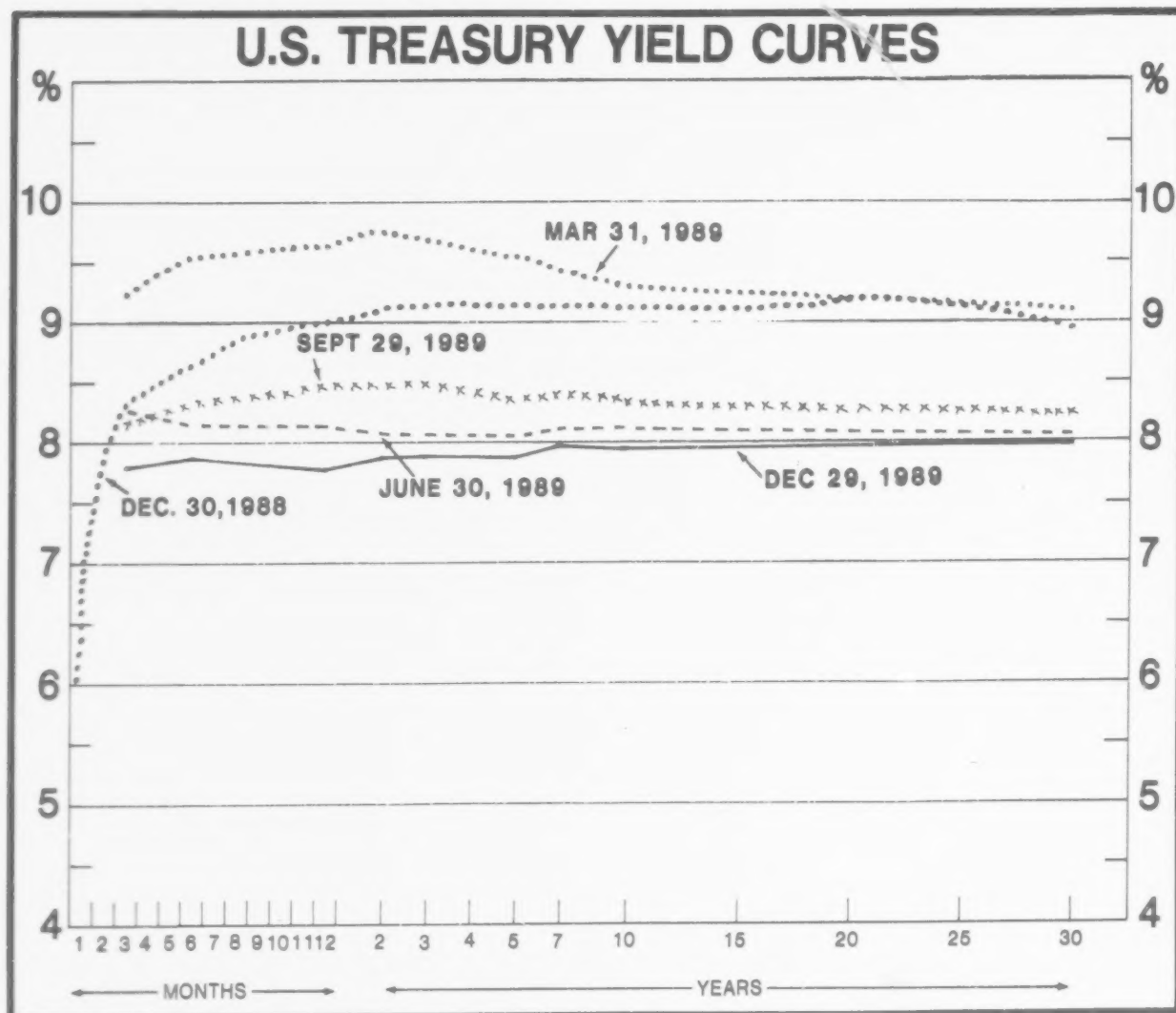
High, Low & Closing Prices of June Treasury Bond Futures in Chicago In 32nds of 100%

Year of Delivery	Year Prior to Delivery			Year Prior to Delivery			Year Prior to Delivery			Delivery Year			Life of Delivery Range	
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1983 High	63-30	65-06	69-29	71-05	77-04	77-20	76-24	77-04	77-13	78-08	79-02	80-00	76-29	80-00
Low	60-29	61-27	63-18	67-17	70-09	73-18	73-21	72-14	71-27	74-28	75-31	74-20	73-24	57-28
Close	62-19	64-01	67-20	70-27	75-11	73-28	76-00	72-21	76-22	75-31	78-30	74-21	73-27	—
1984 High	74-29	73-05	71-12	72-02	75-15	70-31	70-20	71-06	70-26	68-22	67-00	64-31	63-21	77-28
Low	72-00	67-26	66-28	68-09	69-18	68-23	68-05	68-30	67-22	65-22	64-17	59-16	60-11	58-28
Close	73-03	68-16	68-12	71-23	69-19	70-17	69-15	70-07	68-07	66-07	64-22	60-05	61-19	—
1985 High	61-16	63-10	65-04	67-20	70-03	72-05	72-00	73-07	70-14	69-24	72-17	77-14	80-11	80-11
Low	58-05	58-00	62-29	63-12	65-19	68-10	69-15	69-09	66-10	67-08	68-23	70-21	77-13	56-25
Close	58-07	63-01	64-06	66-05	69-14	70-10	70-11	72-03	66-15	69-23	70-24	77-11	79-18	—
1986 High	76-07	76-00	75-05	74-29	76-17	79-25	84-25	85-10	96-01	102-12	105-15	101-11	98-01	105-15
Low	72-10	71-09	71-19	71-26	72-04	75-15	78-04	80-20	82-26	92-06	97-29	93-19	90-22	56-29
Close	74-05	72-09	74-02	73-14	76-01	79-15	84-08	84-03	94-00	102-10	100-24	93-28	96-13	—
1987 High	97-10	99-07	100-03	99-23	96-24	98-24	99-30	101-02	100-25	101-19	98-16	93-19	94-07	102-05
Low	88-12	92-16	93-01	90-04	91-21	93-24	96-24	97-09	97-03	97-13	88-13	87-04	89-05	63-12
Close	97-06	95-10	99-29	94-21	96-06	97-25	97-06	98-25	100-14	98-15	93-02	92-02	93-08	—
1988 High	90-29	90-05	88-17	84-30	87-05	88-25	88-09	93-00	94-17	94-11	91-04	88-06	90-22	99-12
Low	85-29	86-12	84-02	79-19	75-00	84-19	82-16	85-09	91-14	89-14	87-17	85-03	86-05	66-16
Close	88-27	86-22	84-25	80-02	85-25	85-28	86-30	92-30	93-20	90-02	87-29	85-26	87-23	—
1989 High	87-09	86-29	85-26	88-02	90-11	90-12	89-26	91-21	91-18	88-28	90-17	93-15	97-25	97-25
Low	83-08	83-04	82-02	84-05	87-16	86-09	86-27	87-24	87-12	86-09	87-25	88-07	92-23	73-11
Close	86-09	84-04	84-12	87-24	90-10	87-23	88-26	90-20	88-06	88-13	90-06	93-02	95-27	—
1990 High	97-16	98-29	100-11	97-11	100-15	100-00	100-15	98-21	94-30					
Low	92-13	95-31	95-16	94-25	95-19	98-13	98-02	92-13	91-13					
Close	97-11	98-29	95-25	95-19	99-03	94-08	98-17	94-02	93-06					

Source: Chicago Board of Trade

T.320

INTEREST RATES



U.S. Industrial Production Index¹ (Seasonally Adjusted) 1977 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	110.3	110.9	111.2	109.9	110.9	110.9	110.5	110.2	110.4	111.0	111.0	111.0	110.7
1980	111.3	111.4	111.4	109.1	106.2	105.0	104.8	106.3	107.7	108.5	110.7	111.0	108.6
1981	111.0	111.2	111.6	110.6	111.2	112.0	113.4	112.8	111.5	110.4	109.0	107.4	111.0
1982	105.4	107.0	105.8	104.5	103.6	103.0	102.5	102.0	101.3	100.5	100.6	100.5	103.1
1983	102.5	103.3	104.2	105.6	106.9	107.8	109.8	111.6	113.7	114.4	114.8	115.5	109.2
1984	118.5	119.3	119.9	120.5	121.0	121.9	122.8	123.0	122.4	122.1	122.7	122.7	121.4
1985	122.4	122.9	123.3	123.1	123.7	123.5	123.4	124.1	124.4	123.7	124.8	125.4	123.7
1986	126.4	125.5	123.9	124.7	124.3	124.1	124.8	124.9	124.5	125.3	125.7	126.8	125.1
1987	126.2	127.1	127.4	127.4	128.2	129.1	130.6	131.2	131.0	132.5	133.2	133.9	129.8
1988 ²	134.4	134.4	134.7	135.4	136.1	136.5	138.0	138.5	138.6	139.4	139.9	140.4	137.2
1989 ²	140.8	140.5	140.7	141.7	141.6	142.0	141.9	142.5	142.1	141.3	141.5		

¹ Total Index of the Federal Reserve Index of Quantity Output. ² Preliminary. Source: Federal Reserve System

T.318

INTEREST RATES

High, Low & Closing Prices of June 13 Wk. Treasury Bill Futures in Chicago In Points of 100%

Year of Delivery	Year Prior to Delivery												Delivery Year				Life of Delivery Range
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June		
1981	High	90.90	92.00	92.64	92.04	91.10	89.61	89.77	88.47	88.89	89.43	89.00	89.38	88.95	85.90	86.48	92.64
	Low	87.51	90.60	91.15	90.65	88.45	87.66	87.47	87.08	85.40	87.31	86.36	86.64	85.52	83.35	84.34	83.35
	Close	90.79	91.60	91.50	90.72	89.13	88.31	87.51	87.25	88.18	88.89	87.19	88.77	85.55	85.39	85.79	—
1982	High	89.20	87.81	88.47	87.86	87.52	87.00	87.61	89.54	89.42	87.85	87.48	88.32	88.16	88.94	88.46	91.26
	Low	87.09	86.03	87.40	86.91	85.95	85.48	85.53	87.42	86.93	85.85	85.45	86.46	86.67	87.41	87.16	85.45
	Close	87.10	87.73	87.92	87.21	86.08	85.60	87.55	89.19	87.76	86.90	86.92	86.83	87.88	88.57	87.18	—
1983	High	87.37	87.82	87.56	87.93	89.12	89.66	91.19	91.43	91.94	92.26	92.40	92.28	92.04	92.22	91.65	92.40
	Low	86.45	87.00	86.32	86.75	87.63	87.95	89.29	90.57	90.67	91.41	91.26	91.12	91.20	91.28	91.12	85.83
	Close	87.29	87.64	86.77	87.72	88.11	89.63	90.70	90.61	91.92	91.45	92.19	91.20	91.98	91.30	91.15	—
1984	High	91.23	91.47	90.60	90.44	90.06	90.51	90.66	90.57	90.47	90.82	90.78	90.48	90.18	90.36	90.37	91.47
	Low	90.63	90.33	90.11	89.55	89.30	89.57	90.32	90.13	90.00	90.32	90.28	89.79	89.77	89.44	90.12	86.50
	Close	91.23	90.34	90.39	89.60	89.59	90.46	90.39	90.39	90.44	90.72	90.38	89.97	89.94	90.18	90.28	—
1985	High	88.92	88.60	87.95	88.47	88.90	89.51	90.12	91.13	91.46	91.81	91.4	91.49	92.25	92.93	93.19	93.19
	Low	88.46	87.16	87.14	87.17	88.28	88.53	89.09	89.45	90.69	91.14	90.78	90.39	91.26	91.98	92.95	87.14
	Close	88.52	87.25	87.20	88.28	88.69	89.15	90.10	90.70	91.16	91.54	90.80	91.41	92.01	92.91	93.09	—
1986	High	90.64	91.68	92.24	92.41	92.17	92.32	92.59	92.91	93.30	93.18	93.53	94.07	94.71	94.20	93.74	94.71
	Low	89.86	90.36	91.58	91.50	91.51	91.74	92.03	92.41	92.72	92.63	92.93	93.38	93.96	93.68	93.48	86.43
	Close	90.37	91.66	91.89	91.62	91.93	92.19	92.51	92.91	93.14	93.13	93.39	94.07	94.11	93.71	93.49	—
1987	High	94.38	93.89	94.06	94.37	94.89	95.08	94.90	94.91	94.95	94.97	94.69	94.67	94.38	94.29	94.40	95.08
	Low	93.55	93.17	92.94	93.91	94.22	93.46	94.50	94.55	94.62	94.58	94.18	94.20	93.68	93.66	94.13	90.41
	Close	93.78	93.22	94.03	94.31	94.89	94.57	94.75	94.83	94.66	94.60	94.62	94.31	93.88	94.22	94.35	—
1988	High	94.06	93.05	93.40	93.58	93.38	92.84	94.10	93.59	93.79	94.20	94.45	94.40	94.30	93.88	93.51	94.45
	Low	92.77	91.95	92.39	93.05	92.71	92.02	91.28	92.91	93.06	93.43	94.04	93.98	93.82	93.37	93.48	91.28
	Close	92.98	92.70	93.29	93.11	92.82	92.07	93.04	93.58	93.70	94.18	94.35	94.19	93.87	93.47	93.49	—
1989	High	93.20	92.91	92.96	92.80	92.62	92.72	92.89	92.94	92.34	91.89	91.68	91.08	91.87	91.98	—	93.48
	Low	92.84	92.42	92.48	92.35	91.97	92.15	92.51	92.09	91.79	91.62	90.80	90.48	90.90	91.35	—	90.48
	Close	92.90	92.54	92.75	92.41	92.19	92.58	92.88	92.34	91.89	91.66	90.91	90.83	91.70	91.36	—	—
1990	High	91.87	92.46	93.09	93.58	93.53	93.03	93.53	93.66	93.65							
	Low	91.40	91.69	92.40	92.97	92.52	92.52	92.60	93.06	93.30							
	Close	91.86	92.41	93.01	93.44	92.62	92.60	93.21	93.47	93.33							

Source: International Monetary Market (Chicago)

T.321

Volume of Trading of T-Note (10-Yr.) Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	59.7	110.5	126.8	105.3	199.1	145.1	147.2	162.8	139.5	149.2	166.0	150.7	1,662
1985	171.8	216.0	215.9	175.8	274.9	266.9	219.4	282.9	212.7	234.3	297.5	292.5	2,860
1986	269.7	401.4	383.1	381.7	434.8	470.3	309.7	363.1	459.5	319.9	328.1	305.2	4,426
1987	304.9	358.3	347.6	643.8	541.3	405.1	269.6	446.0	512.9	662.0	369.4	392.8	5,254
1988	335.3	462.8	420.6	298.8	467.8	469.6	327.4	566.0	455.4	383.2	537.4	476.7	5,201
1989	450.5	547.9	468.3	431.6	625.6	637.3	453.0	629.6	465.8	555.8	516.7	327.4	6,110

Source: Chicago Board of Trade

T.0565B

Volume of Trading of Eurodollar Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	104.8	127.4	235.4	202.2	434.7	448.1	438.6	354.5	435.3	491.1	532.4	388.4	4,193
1985	524.7	723.6	877.2	764.7	753.7	891.5	798.0	697.5	769.1	694.3	695.4	710.7	8,901
1986	888.5	825.1	627.9	933.7	982.6	1,018.1	755.3	847.2	1,288.7	1,046.7	836.3	774.8	10,825
1987	1,072	1,472	1,197	2,562	1,825	1,760	1,292	1,514	2,495	2,849	1,202	1,177	20,416
1988	1,466	1,681	1,635	1,575	1,830	2,288	1,604	1,893	1,957	1,586	2,236	1,952	21,705
1989	2,257	3,107	3,848	4,471	3,941	4,116	3,193	3,980	2,977	3,971	2,914	2,043	40,818

Source: International Monetary Market (IMM)—Chicago Mercantile Exchange

T.0564B

INTEREST RATES

Month-End Open Interest of Eurodollar Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1986	145.3	155.3	142.7	164.0	173.9	155.9	171.5	203.5	216.6	227.4	234.3	214.4
1987	256.6	255.6	236.0	281.5	294.7	253.0	301.9	344.2	361.0	369.7	354.3	292.3
1988	339.6	363.8	336.9	408.6	449.3	410.7	466.1	551.5	471.9	486.1	557.6	528.9
1989	600.6	722.3	740.9	750.2	751.9	665.0	709.8	668.1	579.7	611.3	693.2	610.5

Source: International Monetary Market (IMM)—Chicago Mercantile Exchange

T.0564A

High, Low & Closing Prices of June Eurodollar Futures in Chicago In Points of 100%

Year of Delivery	Apr.	May	June	Year Prior to Delivery				Year Prior to Delivery				Delivery Year				Life of Delivery Range
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1986 High	89.44	90.47	91.15	91.16	90.98	91.14	91.55	91.93	92.34	92.19	92.55	93.04	93.69	93.42	93.02	93.69
Low	88.34	88.93	90.38	90.17	90.25	90.40	90.83	91.40	91.59	91.53	91.76	92.39	92.95	92.81	92.82	86.73
Close	88.94	90.46	90.79	90.31	90.72	90.97	91.46	91.82	92.14	92.02	92.39	93.03	93.25	92.93	93.00	—
1987 High	93.20	92.81	92.90	93.28	94.02	94.13	94.02	94.08	94.15	94.14	93.84	93.78	93.38	92.76	92.90	94.15
Low	92.44	92.00	91.82	92.80	93.13	93.35	93.58	93.71	93.84	93.74	93.37	93.24	92.49	92.27	92.60	88.84
Close	92.65	92.10	92.84	93.28	94.08	93.66	93.91	94.01	93.86	93.77	93.67	93.35	92.61	92.74	92.87	—
1988 High	92.93	91.78	92.10	92.21	92.01	91.48	93.80	92.16	92.32	92.79	93.14	93.10	92.70	92.50	92.40	93.80
Low	91.44	90.60	91.13	90.95	91.36	90.65	89.79	91.54	91.60	92.00	92.71	92.58	92.37	92.19	92.24	89.79
Close	91.78	91.47	91.89	91.76	91.46	90.74	91.74	92.03	92.20	92.76	93.00	92.72	92.41	92.23	92.38	—
1989 High	91.71	91.42	91.58	91.42	91.16	91.35	91.51	91.58	91.00	90.60	90.43	89.69	90.35	90.77	90.85	92.12
Low	91.35	90.97	91.08	90.93	90.50	90.66	91.15	90.67	90.50	90.30	89.30	88.76	89.35	89.91	90.50	88.76
Close	91.39	91.03	91.36	90.99	90.69	91.19	91.51	90.99	90.56	90.43	89.47	89.30	90.15	90.54	90.56	—
1990 High	90.60	91.13	91.73	92.30	92.35	91.77	92.15	92.45	92.44							
Low	89.77	90.23	90.90	91.69	91.37	91.24	91.37	91.85	92.04							
Close	90.43	90.95	91.69	92.24	91.44	91.39	92.00	92.31	92.16							

Source: International Monetary Market (IMM)—Chicago Mercantile Exchange

T.0564



INTEREST RATES

Month-End Open Interest of T-Note (10-Yr.) Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1987	57.6	50.8	56.0	66.9	64.0	65.6	72.3	78.0	79.0	82.6	73.7	76.2
1988	76.8	73.9	71.4	76.7	83.0	73.9	94.6	103.5	89.6	90.5	80.7	67.9
1989	84.0	84.7	86.2	85.7	88.6	71.0	84.5	71.6	75.3	87.4	79.9	70.0

Source: Chicago Board of Trade

T.0565A

High, Low & Closing Prices of June T-Note Futures in Chicago In 32nds of 100%

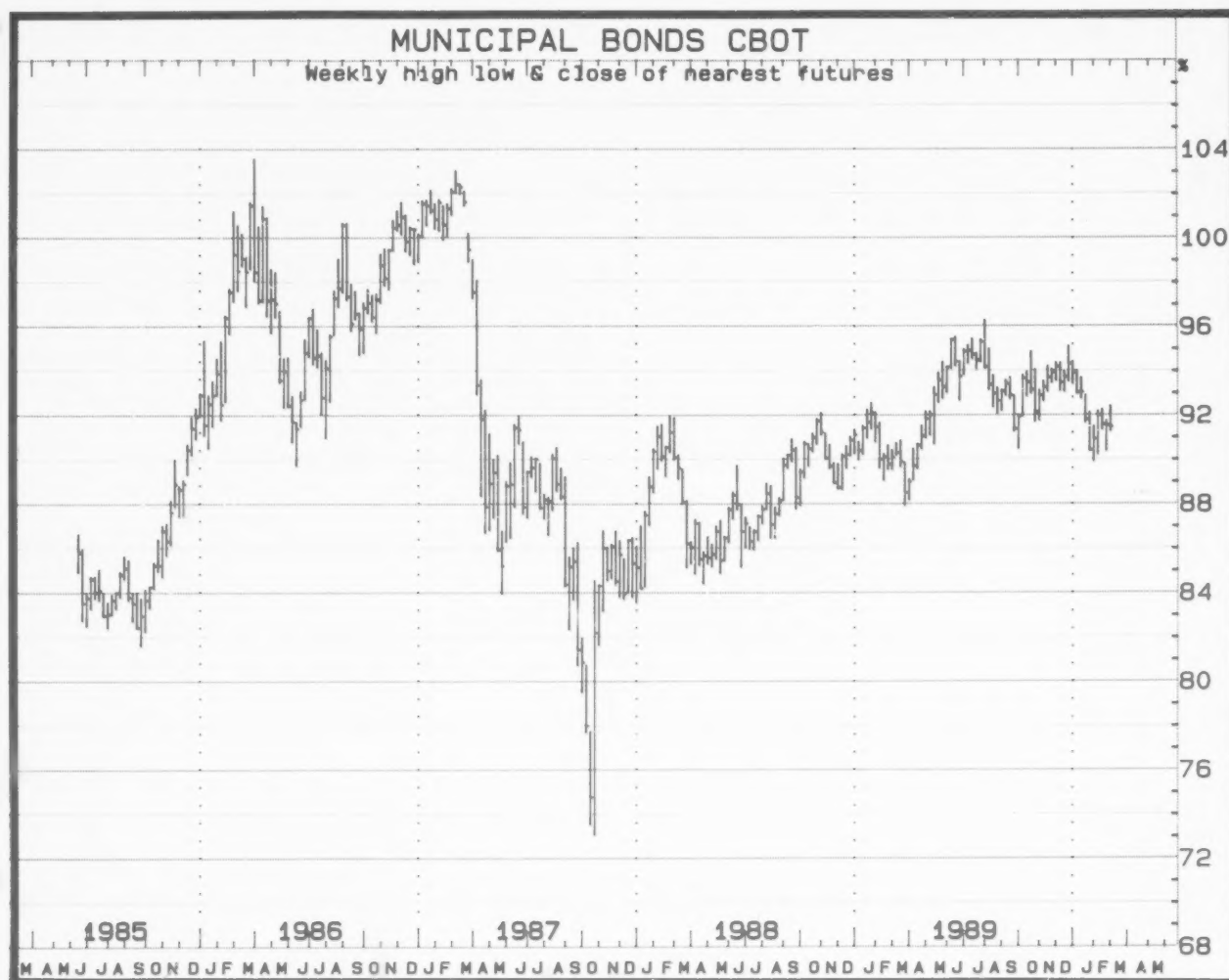
Year of Delivery	Year Prior to Delivery								Delivery Year				Life of Delivery Range	
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May		June
1987 High		101-14	102-21	105-00	101-18	102-20	103-21	104-11	104-05	104-15	102-09	98-01	98-10	105-00
Low	—	98-00	98-29	97-31	99-00	100-12	102-00	102-19	102-05	101-18	95-02	93-06	94-22	93-06
Close	—	99-21	102-21	99-24	101-15	102-08	102-14	103-13	103-31	102-10	97-24	96-09	97-22	—
1988 High	—	—	92-25	90-23	92-17	93-14	93-10	97-04	98-04	98-09	95-31	94-00	95-15	98-09
Low	—	—	90-29	87-19	83-30	91-04	89-25	91-24	96-05	94-27	93-20	91-15	92-10	83-30
Close	—	—	91-00	87-19	91-24	91-23	92-26	97-03	97-23	95-13	93-29	92-02	93-00	—
1989 High	92-28	92-12	91-26	93-19	95-06	95-02	94-02	94-09	94-13	92-15	93-30	96-11	98-26	98-26
Low	89-31	90-15	89-24	90-30	93-17	92-05	92-03	91-27	91-06	90-13	91-20	92-16	95-23	89-24
Close	92-08	90-28	90-29	93-19	95-05	93-00	92-19	93-21	91-29	91-30	93-20	95-31	97-24	—
1990 High	—	—	98-08	98-21	101-06	100-26	101-04							
Low	—	—	97-18	98-21	98-25	99-16	99-13							
Close	—	—	98-01	98-21	99-26	100-15	99-23							

Source: Chicago Board of Trade

T.0565



INTEREST RATES



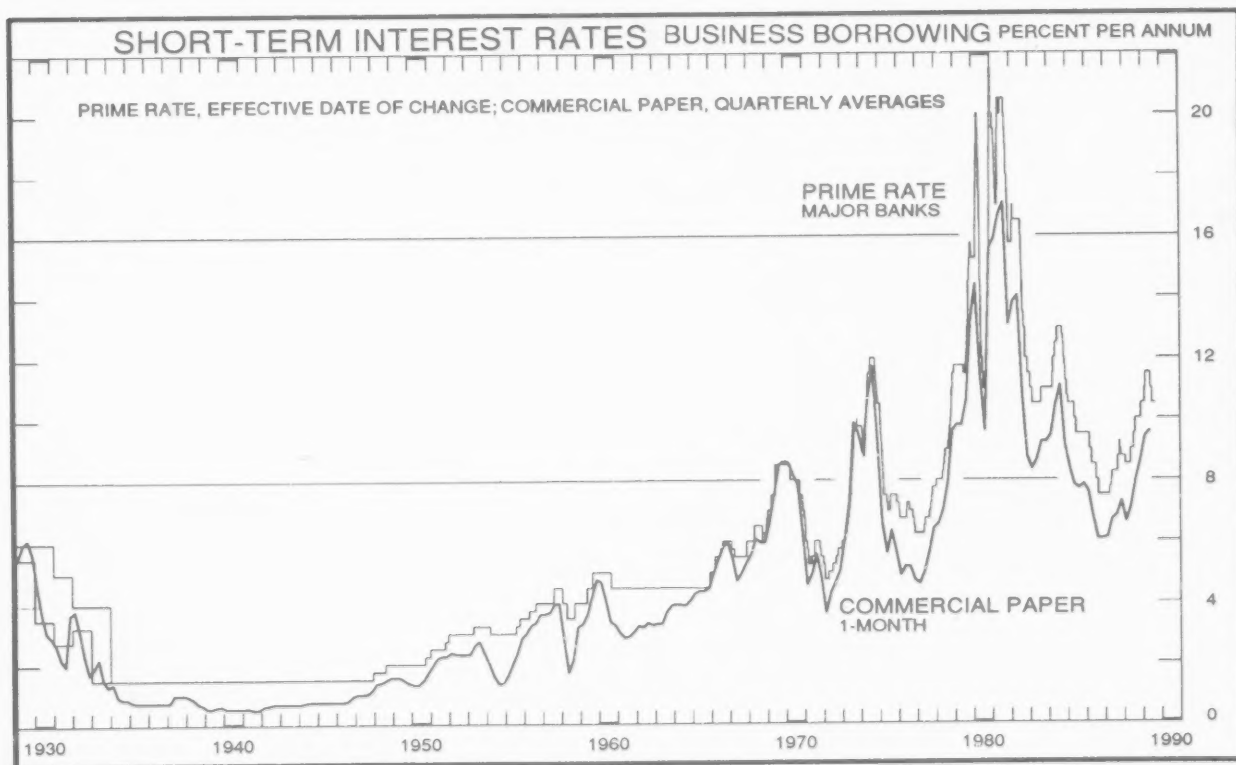
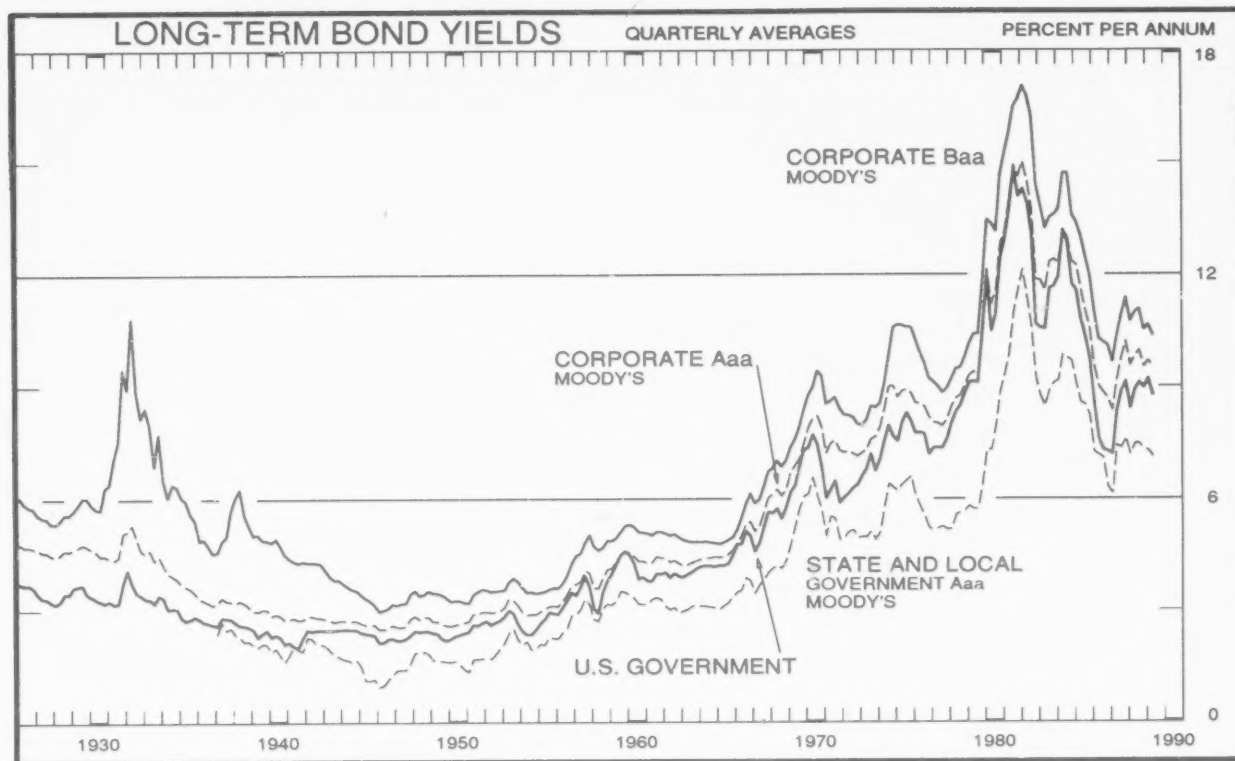
U.S. Federal Funds Rate in Percent

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1976	4.87	4.77	4.84	4.82	5.29	5.48	5.31	5.29	5.25	5.03	4.95	4.65	5.05
1977	4.61	4.68	4.69	4.73	5.35	5.39	5.42	5.90	6.14	6.47	6.51	6.56	5.54
1978	6.70	6.78	6.79	6.89	7.36	7.60	7.81	8.04	8.45	8.96	9.76	10.03	7.93
1979	10.07	10.06	10.09	10.01	10.24	10.29	10.47	10.94	11.43	13.77	13.18	13.78	11.19
1980	13.82	14.13	17.19	17.61	10.98	9.47	9.03	9.61	10.87	12.81	15.85	18.90	13.36
1981	19.08	15.93	14.70	15.72	18.52	19.10	19.04	17.82	15.87	15.08	13.31	12.37	16.38
1982	13.22	14.78	14.68	14.94	14.45	14.15	12.59	10.12	10.31	9.71	9.20	8.95	12.26
1983	8.68	8.51	8.77	8.80	8.63	8.98	9.37	9.56	9.45	9.48	9.34	9.47	9.09
1984	9.56	9.59	9.91	10.29	10.32	11.06	11.23	11.64	11.30	9.99	9.43	8.38	10.23
1985	8.35	8.50	8.58	8.27	7.97	7.53	7.88	7.90	7.92	7.99	8.05	8.27	7.41
1986	8.14	7.86	7.48	6.99	6.85	6.92	6.56	6.17	5.89	5.85	6.04	6.91	6.81
1987	6.43	6.10	6.13	6.37	6.85	6.73	6.58	6.73	7.22	7.29	6.69	6.77	6.66
1988	6.83	6.58	6.58	6.87	7.09	7.51	7.76	8.01	8.19	8.30	8.35	8.76	7.57
1989	9.12	9.36	9.85	9.84	9.81	9.53	9.24	8.99	9.02	8.84	8.55	8.50	9.22

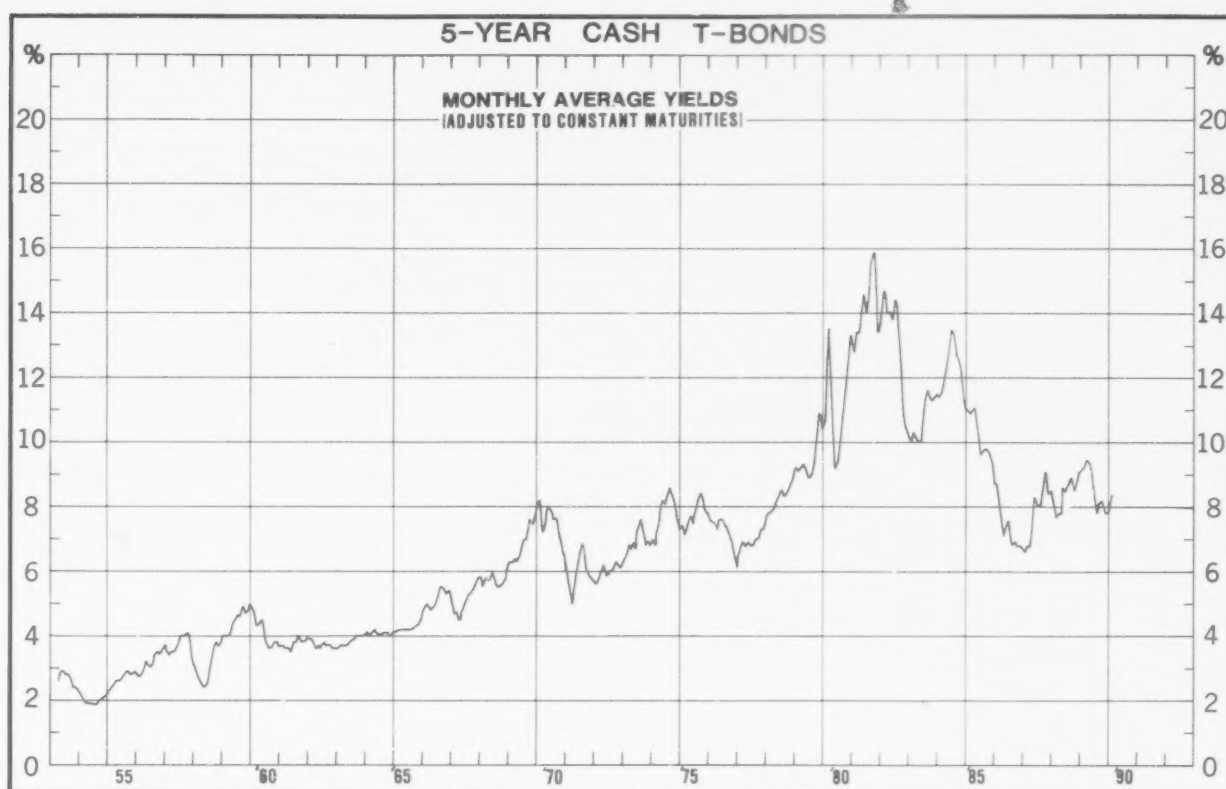
Source: U.S. Dept. of Commerce.

T.318a

INTEREST RATES



INTEREST RATES



U.S. Money Supply M1 in 1982 Dollars In Billions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	455.4	455.6	455.0	458.0	453.3	449.8	448.8	449.8	448.2	444.2	446.8	450.4	451.3
1982	453.4	450.7	449.6	450.5	447.5	443.4	443.4	448.5	455.4	458.4	465.6	470.8	453.1
1983	470.2	476.4	480.8	480.4	484.6	487.9	491.8	493.6	495.6	495.9	496.2	497.2	487.6
1984	496.1	496.0	497.7	498.2	499.3	502.3	501.3	500.5	502.4	499.3	501.6	504.9	500.0
1985	507.8	511.4	512.0	513.3	517.1	523.0	527.3	534.1	539.6	540.4	541.7	546.7	526.2
1986	545.5	551.3	562.1	569.4	577.7	583.2	591.5	599.0	603.5	609.0	618.0	633.0	585.4
1987	632.7	631.0	630.7	636.8	635.9	629.8	629.5	629.2	629.5	635.3	630.9	628.0	632.7
1988 ¹	630.4	630.8	631.8	634.7	632.0	634.4	636.7	634.5	633.0	631.4	630.8	631.7	632.7
1989 ¹	625.0	623.5	619.6	612.8	601.9	598.5	602.5	602.6	604.6	606.9	605.8		

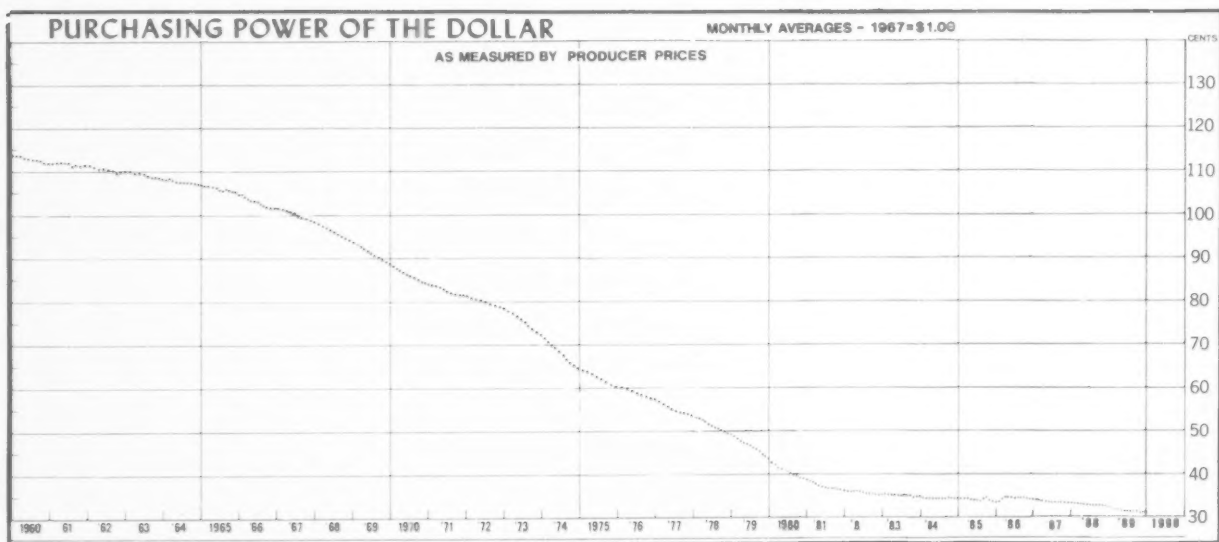
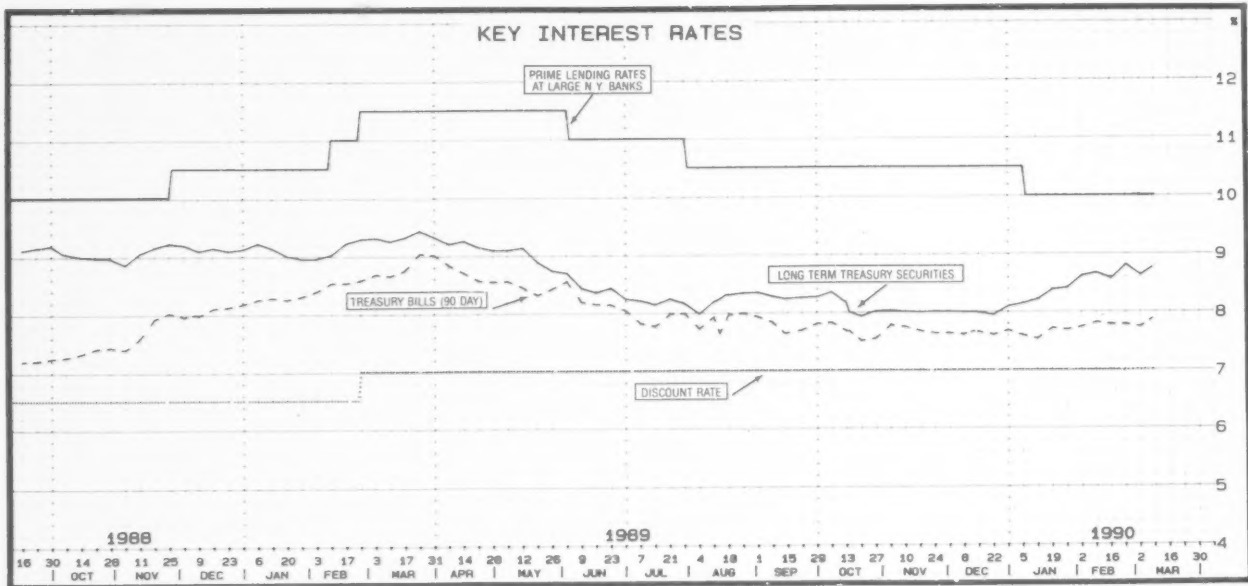
¹ Preliminary. M1—This measure is currency, travelers checks, plus demand deposits at commercial banks and interest-earning checkable deposits at all depository institutions. Source: Federal Reserve System T.327

U.S. Money Supply M2 in 1982 Dollars In Billions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	1,814	1,811	1,817	1,826	1,819	1,814	1,810	1,817	1,814	1,820	1,830	1,842	1,819
1982	1,852	1,851	1,860	1,865	1,861	1,850	1,856	1,873	1,889	1,892	1,909	1,931	1,874
1983	1,977	2,013	2,028	2,029	2,035	2,045	2,050	2,054	2,061	2,069	2,076	2,082	2,043
1984	2,078	2,086	2,093	2,096	2,102	2,111	2,112	2,116	2,125	2,129	2,147	2,166	2,114
1985	2,186	2,196	2,195	2,188	2,199	2,219	2,230	2,245	2,255	2,256	2,255	2,262	2,224
1986	2,259	2,274	2,308	2,334	2,351	2,361	2,384	2,399	2,409	2,424	2,435	2,451	2,363
1987	2,450	2,410	2,432	2,431	2,424	2,420	2,421	2,422	2,429	2,435	2,429	2,429	2,430
1988 ¹	2,436	2,449	2,456	2,461	2,459	2,462	2,461	2,457	2,452	2,446	2,454	2,454	2,454
1989 ¹	2,437	2,430	2,426	2,411	2,391	2,399	2,417	2,431	2,443	2,447	2,453		

¹ Preliminary. M2—This measure adds to M1 overnight repurchase agreements (RP's) issued by commercial banks and certain overnight Eurodollars (those issued by Caribbean branches of member banks) held by U.S. nonbank residents, general purpose and broker/dealer money market mutual fund shares (MMMF), and savings and small-denomination time deposits. Source: Federal Reserve System T.328

INTEREST RATES



U.S. Gross National Product, National Income, and Personal Income In Billions of Current Dollars¹

Year	Gross National Product					National Income					Personal Income				
	I	II	III	IV	Annual Avg.	I	II	III	IV	Annual Avg.	I	II	III	IV	Annual Avg.
1981	2,979	3,018	3,100	3,114	3,053	2,388	2,415	2,483	2,487	2,444	2,441	2,485	2,568	2,591	2,521
1982	3,113	3,160	3,179	3,213	3,166	2,483	2,514	2,528	2,548	2,518	2,614	2,656	2,684	2,729	2,671
1983	3,266	3,367	3,444	3,546	3,406	2,599	2,686	2,742	2,852	2,720	2,753	2,813	2,847	2,942	2,839
1984	3,675	3,754	3,808	3,852	3,772	2,962	3,009	3,047	3,096	3,029	3,034	3,075	3,138	3,188	3,109
1985	3,926	3,979	4,047	4,108	4,015	3,162	3,209	3,252	3,313	3,234	3,263	3,308	3,332	3,399	3,325
1986	4,181	4,195	4,253	4,297	4,232	3,363	3,395	3,419	3,473	3,413	3,457	3,510	3,540	3,598	3,526
1987 ²	4,389	4,476	4,567	4,666	4,524	3,551	3,616	3,694	3,800	3,665	3,674	3,733	3,796	3,909	3,778
1988 ²	4,740	4,839	4,927	5,017	4,881	3,854	3,934	4,006	4,097	3,973	3,949	4,027	4,098	4,185	4,065
1990 ²	5,113	5,202	5,281			4,185	4,250	4,287			4,318	4,400	4,458		

¹ Seasonally adjusted at annual rates. ² Preliminary. Source: U.S. Dept. of Commerce

T.329

Iron and Steel

President Bush redeemed a campaign pledge to the nation's steel industry in 1989, when he agreed to negotiate a new package of so-called voluntary restraint agreements with dozens of countries to curb shipments of foreign steel to the U.S. While the industry had been resurgent in the previous two years, the specter of low-cost foreign competition was real, and vigorous enforcement of anti-dumping laws continued during the year.

For the first seven months of 1989, domestic raw steel production totaled 59.23 million tons, up one percent from the 58.67 million in the same 1988 period. Capacity utilization was high, but off from 1988; it amounted to 88 percent in January through July, compared with 90 percent in the same period of 1988. Continuous cast steel production accounted for 63 percent of the raw total.

After years of declining production and bankruptcies, the domestic steel industry settled into a more stable pattern of business. The year was devoid of the labor problems that plagued the industry throughout the early and mid-1980s. According to the U.S. Bureau of Mines, there were 81 companies producing steel in 130 plants. Steel scrap prices at around \$114 a long ton in early 1989 were above late 1988's level, however softness appeared towards 1989's end. Prices sank to \$100, which hadn't been seen since early 1988.

U.S. mine production of iron ore for the first six months of 1989 totaled 28.4 million tons, up about 6 percent from 1988's 26.9 million. Shipments also

rose, totaling 23.5 million tons for the first six months of 1989, 7 percent above 1988's 21.9 million.

The U.S. imports iron ore and iron ore agglomerates from eleven nations. For the first six months of 1989, imports totaled 9.5 million tons, up 9 percent from 8.7 million tons in the same period of 1988. Canada was the leading supplier of iron ore to the U.S. with 3.8 million tons in the period, followed by Brazil with 2.6 million.

While world demand for crude steel has increased since 1986 and global excess ore stocks have been gradually worked off, there are still soft spots in the global and domestic demand picture. Accordingly, in August of 1989, Cleveland-Cliffs Inc. said it would not reopen its dormant Republic Iron Ore Mine.

The company cited adverse economic forecasts made by a number of industry analysts and an inability to determine true near-term production costs. The mine was closed in October 1981, at the beginning of the 1982-84 recession, and was maintained on a standby basis after that. It is assumed that the lack of a guaranteed market for the ore was a major reason for the decision.

Iron is the least expensive and most widely used metal. In most applications, iron and steel compete with less expensive nonmetallic materials, or with more expensive materials having property advantages.

World Production of Raw Steel (Ingots & Castings) In Millions of Short Tons

Year	Belgium	Brazil	Canada	Czechoslovakia	China	France	Italy	Japan	Rep. of Korea	Poland	Spain	South Africa	United Kingdom	United States	USSR	West Germany	World Total
1981	13.6	14.6	16.3	16.8	39.2	23.4	27.3	112.1	11.9	17.3	14.2	9.9	17.2	120.8	163.6	45.9	778.9
1982	10.9	14.3	13.0	16.5	41.0	20.3	26.4	109.7	13.0	16.3	14.5	9.1	15.1	74.6	162.2	39.6	709.9
1983	11.2	16.2	14.1	16.6	44.0	19.4	23.9	107.1	13.1	17.9	14.0	7.9	16.5	84.6	168.1	39.4	730.8
1984	12.5	20.3	16.2	16.3	47.8	20.9	26.5	116.4	14.4	18.2	14.9	8.6	16.7	92.5	170.0	43.4	782.9
1985	11.8	22.5	16.0	16.6	51.5	20.8	26.2	116.1	14.9	17.8	15.7	9.5	17.3	88.3	170.5	44.6	790.0
1986 ¹	10.7	23.4	15.5	16.5	57.4	19.8	25.2	108.3	16.0	18.9	13.2	9.7	16.3	81.6	177.0	40.9	783.3
1987 ²	10.6	24.5	16.2	17.1	61.7	19.5	25.2	108.6	18.5	19.0	13.1	9.6	19.2	89.2	178.6	40.0	804.8
1988 ²					65.0			116.5						99.9	179.5		857.0
1989 ²					67.0			121.0						96.7	186.0		882.7

¹ Preliminary. ² Estimate. Source: Bureau of Mines

T.330

Average Wholesale Prices of Iron and Steel in the U.S. In Dollars Per Net Ton

Year	Pig Iron		No. 2 F.O.B. Birmingham	Steel Billets Pitts.	No. 1 Heavy Melting Steel Scrap		Tin Plate (1/4 Lb.)	Hot Rolled Sheet ²	Cents Per Pound at Pittsburgh		Hot Rolled Strip	Carbon Steel Plates	Cold Rolled Strip	Galvanized Sheets	R.R. Steel ³ Scrap
	Bessemer Neville Isl., Pa.	Iron Age Composite			Pitts.	Chicago			Steel Bars	Hot Rolled					
1981	209.67	204.66	205.33	358.00	100.57	91.76	24.9-26.7	20.13	16.95	29.45	20.13	23.04	30.23	26.05	118.80
1982	213.00	213.00	213.00	358.00	66.47	57.78	26.3-27.9	20.80	17.23	31.06	20.80	24.25	29.75	26.90	84.45
1983	213.00	213.00	213.00	358.00	76.99	72.42	27.7-29.3	22.16	20.25	28.50	22.39	25.45	33.45	28.23	92.83
1984	213.00	213.00	213.00	368.00	92.71	83.12	29.0-30.7	23.60	22.08	29.87	23.60	24.50	35.30	30.15	110.27
1985	213.00	213.00	213.00	378.00	77.43	72.89	30.7-31.9	23.60	24.10	32.00	23.49	24.50	37.24	30.15	98.03
1986	—	213.00	—	378.00	74.87	73.49	31.9-31.9	21.15	24.10	32.00	23.30	18.27	37.24	27.89	94.07
1987	—	213.00	—	378.00	90.58	87.22	31.9-34.1	21.92	17.12	21.23	22.50	19.29	37.24	29.97	117.65
1988 ¹		N.A.		N.A.	113.78	113.47	34.1-36.7	21.50	17.25	21.23	22.10	21.64	37.24	31.05	150.25
1989 ¹					106.80	108.33									

¹ Preliminary. ² 10 gauge. ³ Specialties scrap in \$ per gross ton. Source: American Metal Market

T.337

IRON AND STEEL

Salient Statistics of Steel in the United States In Millions of Short Tons

Year	Value of		Finished Steel Composite Price c. Lb.	Production				Alloy Steel ²			Shipments of Steel Products	
	Exports (Million \$)	Imports		Steel Ingots and Castings			Total	Stainless	Other	Total	Domestic Consumption	Export
				Basic Oxygen	Open Hearth	Electric ³						
1980	3,728	7,792		67.6	13.1	31.2	111.8	1.7	15.4	17.1	83.9	2.6
1981	3,649	11,286	24.22	73.2	13.5	34.1	120.8	1.7	17.6	19.3	88.5	1.8
1982	2,734	10,394	25.27	45.3	6.1	23.2	74.6	1.2	9.2	10.4	61.6	.8
1983	1,783	7,238	26.19	52.1	6.0	26.6	84.6	1.8	9.1	10.9	67.6	.5
1984	1,627	11,495	27.31	52.8	8.3	31.4	92.5	1.8	10.8	12.6	73.7	.4
1985	1,476	11,019	27.58	51.9	6.4	29.9	88.3	1.7	9.9	11.6	73.0	
1986	1,407	9,480	24.79	47.9	3.3	30.4	81.6	1.7	8.5	10.2	70.3	
1987	1,540	9,873	25.4	52.5	2.7	34.0	89.2	2.0	9.1	11.1	76.7	
1988 ⁴			25.4	58.0	5.1	36.2	99.3	2.2	10.8	13.0	84.0	

¹ Preliminary. ² Included under total steel production. ³ Includes crucible steels. ⁴ Estimate.

Sources: American Iron & Steel Institute; U.S. Bureau of Mines

T.331

U.S. Production of Steel Ingots, Rate of Capacity Utilization¹ In Percent

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	59.3	60.9	61.7	55.2	50.9	47.7	43.8	42.4	41.9	40.2	35.9	34.0	48.4
1983	43.4	49.0	55.5	58.9	57.9	56.5	54.3	55.1	57.8	60.2	58.7	54.7	55.4
1984	69.6	76.0	79.1	80.8	79.8	71.4	65.3	60.5	57.7	58.4	57.8	52.4	68.4
1985	60.9	66.1	72.1	71.6	68.9	66.3	62.1	63.2	63.4	65.2	64.7	59.7	66.1
1986	69.4	71.8	71.9	73.5	69.5	63.5	59.2	52.8	54.3	56.8	56.5	54.9	63.8
1987 ²	65.5	69.5	77.3	80.3	80.2	79.7	77.3	79.1	83.9	84.4	85.2	82.8	79.5
1988 ²	88.1	89.7	92.2	91.4	93.1	87.4	88.0	86.6	90.1	87.7	85.8	83.8	89.2
1989 ²	88.2	89.8	90.9	92.2	88.1	86.2	80.8	79.2	80.0	83.0	77.4	73.3	84.1

¹ Based on tonnage capability to produce raw steel for a full order book. ² Preliminary. Source: American Iron and Steel Institute

T.332

United States Production of Steel Ingots In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	10,590	10,028	11,744	11,243	11,423	10,451	10,160	10,120	9,618	9,003	7,962	7,672	120,828
1982	7,737	7,178	8,049	7,006	6,678	6,050	5,719	5,538	5,299	5,262	4,546	4,456	74,577
1983	5,570	5,676	7,127	7,292	7,412	6,993	6,921	7,020	7,134	7,692	7,263	6,991	83,379
1984	7,970	8,142	9,056	8,997	9,174	7,945	7,460	6,915	6,378	6,703	6,422	6,013	92,528
1985	6,984	6,851	8,269	7,872	7,830	7,292	7,010	7,130	6,924	7,351	7,051	6,728	88,259
1986	7,665	7,171	7,947	7,787	7,616	6,730	6,352	5,668	5,644	6,087	5,860	5,877	81,606
1987	6,248	5,992	7,375	7,402	7,641	7,349	7,324	7,494	7,694	8,073	7,882	7,916	89,151
1988 ¹	8,380	7,984	8,763	8,398	8,832	8,031	8,313	8,181	8,237	8,332	7,883	7,954	99,924
1989 ¹	8,729	8,022	8,997	8,738	8,633	8,171	7,955	7,790	7,617	8,175	7,386	7,222	97,435

¹ Preliminary. Source: American Iron and Steel Institute

T.333

Shipments of Steel Products¹ by Market Classifications in the United States In Thousands of Net Tons

Year	Appliances, Utensils & Cutlery	Auto-motive	Containers, Packaging & Shipping Materials	Construction Includ. Maint.	Contractors Products	Electrical Equipment	Export	Machinery, Industrial Equip. & Tools	Oil and Gas	Rail Transportation	Steel for Converting & Processing ²	Steel Service Center & Distributors	All Other ³	Total Shipments
1981	1,775	13,154	5,292	8,446	3,230	2,600	1,844	4,624	6,238	2,162	3,338	17,637	16,672	87,014
1982	1,337	9,288	4,470	6,283	2,287	2,003	832	2,584	2,745	1,020	3,222	13,067	12,429	61,567
1983	1,618	12,320	4,532	7,271	2,703	2,335	544	2,486	1,296	937	1,211	16,710	13,621	67,584
1984	1,635	12,554	4,337	8,614	2,563	2,363	428	2,737	1,727	1,036	4,686	17,234	13,098	73,012
1985	1,182	12,725	4,069	6,407	2,663	1,845	494	2,129	1,745	1,059	4,971	17,548	15,861	72,698
1986	1,648	11,889	4,113	7,336	3,278	2,113	495	2,076	1,023	798	5,635	17,478	12,381	70,263
1987	1,633	11,343	4,372	7,681	3,337	2,373	515	2,277	1,489	758	7,195	19,840	13,844	76,654
1988	1,631	12,078	4,423	6,014	2,815	2,465	1,233	2,537	1,234	1,116	6,410	18,980	23,038	83,974
1989	1,710	11,225	4,465	6,814	2,898	2,484	3,183	2,158	864	1,116	6,177	18,382	22,783	84,259

¹ All grades including carbon, alloy & stainless steel. ² Net total after deducting shipments to reporting companies for conversion or resale. ³ Includes agricultural; bolts, nuts, rivets & screws; forgings (other than automotive); shipbuilding & marine equipment; aircraft; mining, quarrying & lumbering; other domestic & commercial equipment machinery; ordnance & other direct military; & shipments of non-reporting companies. Source: American Iron and Steel Institute

T.334

IRON AND STEEL

Net Shipments of Steel Products in the United States

(All Grades, Including Carbon, Alloy & Stainless Steel) In Thousands of Net Tons

Year	Cold Finished Bars	Rails & Accessories	Wire Drawn &/or Rolled	Tin Mill Products	Plates (cut & coils)	Sheets & Strip Galv. (Hot Dipped)	Hot Rolled Bars	Pipe & Tubing	Shapes & Steel Piling	Reinforcing Bars	Hot Rolled Sheets	Cold Rolled Sheets	Semi-Finished	Alloy	Stainless
1985	1,261	888	1,136	3,772	4,313	10,543	5,526	4,096	4,843	4,444	12,952	13,574	4,350	7,432	1,251
1986	1,235	640	1,080	3,802	3,565	11,269	5,648	2,836	4,528	4,299	12,167	13,250	4,954	6,556	1,187
1987	1,361	515	1,105	3,988	4,048			3,570	5,120	4,918	13,048	13,859	5,456	7,275	1,623
1988	1,499	615	1,073	4,069	7,328	8,115	6,460	4,443	5,209	5,091	12,589	13,871	5,976	4,552	1,586
1989	1,429	545	1,005	4,115	7,293	8,543	6,216	4,011	5,438	5,342	12,898	13,854	6,080	4,159	1,472

Source: American Iron & Steel Institute

T.335

U.S. Foreign Trade of Iron & Steel Products In Thousands of Short Tons

Year	U.S. Imports of Iron & Steel Pds.					Exports of Iron & Steel Pds. from U.S.				
	Steel Mill Pds.	Other Steel Pds.	Iron Pds. & Ferro-alloys	Grand Total Quantity	Mil. \$	Iron & Steel Scrap	Steel Mill Pds.	Other Steel Pds.	Iron Pds. & Ferro-alloys	Grand Total Quantity
1983	17,034	804	125	17,964	7,238	641	1,199	247	144	1,589
1984	26,169	1,146	173	27,488	11,495	577	977	261	174	1,413
1985	24,278	1,211	218	25,707	11,019	611	930	200	136	1,266
1986	20,677	1,257	210	22,145	9,480	724	927	168	106	1,201
1987 ¹	20,351	1,020	163	21,534	9,873	843	1,094	226	99	1,419
1988 ²				22.3						2,600

¹ Preliminary. ² Estimate. Source: U.S. Bureau of Mines; American Metal Market

T.336

World Production of Pig Iron (Excludes Ferro-Alloys) In Millions of Short Tons

Year	Australia	Belgium	Brazil	Canada	China	Czech	France	W. Germany	India	Italy	Japan	Romania	Poland	Un. Kingdom	USSR	United States	World Total
1983	5.6	8.8	14.3	9.4	41.2	10.4	15.3	29.3	10.0	11.4	80.4	9.0	10.7	10.4	121.0	48.8	509.7
1984	5.9	9.9	19.0	10.6	44.1	10.5	16.6	33.3	10.3	12.8	88.6	10.5	11.0	10.5	121.6	52.0	546.2
1985	6.2	9.6	20.9	10.7	48.1	10.5	17.0	34.8	10.8	12.9	88.8	10.2	10.8	11.4	120.6	50.0	556.3
1986	6.5	8.9	22.4	10.2	55.3	10.5	15.5	32.0	11.6	13.1	82.3	10.3	11.6	10.7	124.8	44.3	553.4
1987 ¹	6.2	8.8	22.4	10.5	59.4	11.0	14.7	31.4	12.1	11.5	80.9	10.3	11.6	13.2	125.0	48.3	564.9
1988 ²					62.2						87.4				125.0	55.7	593.9
1989 ²					64.0						89.0				131.0	53.8	608.8

¹ Preliminary. ² Estimated. Source: Bureau of Mines

T.338

U.S. Pig Iron Production (Excluding Production of Ferro-Alloys) In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	3,969	3,897	4,684	4,512	4,553	4,301	4,114	4,110	3,883	4,060	3,999	3,930	50,446
1986	4,297	4,002	4,341	4,341	4,284	3,697	3,526	2,966	2,982	3,161	3,097	3,146	43,952
1987 ¹	3,214	3,069	3,891	4,048	4,256	4,079	4,235	4,165	4,208	4,407	4,351	4,447	48,137
1988 ¹	4,683	4,443	4,842	4,699	4,932	4,497	4,762	4,584	4,612	4,646	4,455	4,712	55,745
1989 ¹	4,964	4,654	5,112	4,990	4,917	4,707	4,604	4,172	4,403	4,692	4,322	4,202	55,739

¹ Preliminary. Source: American Iron and Steel Institute

T.341

Salient Statistics of Ferrous Scrap & Pig Iron in the U.S. In Millions of Short Tons

Year	Consumption: Ferrous Scrap & Pig Iron Charged To										Stocks—Dec. 31 Ferrous Scrap & Pig Iron at Consumers ¹		
	Mfg. of Pig Iron & Steel Ingots & Castings			Iron Foundries & Misc. Users			Mfg. of Steel Castings (Scrap)	All Uses			Imports of Scrap ²	Exports of Scrap ³	Total Stocks
	Scrap	Pig Iron	Total	Scrap	Pig Iron	Total		Ferr. Scrap	Pig Iron	Grand Total			
1984	51.8	52.0	103.8	12.3	1.2	13.5	1.6	65.7	53.2	118.9	.6	9.5	5.3
1985	53.2	49.8	103.0	15.2	1.5	16.7	2.1	70.5	51.4	121.9	.6	10.0	5.1
1986	49.7	44.3	94.0	14.4	1.2	15.6	1.8	65.9	45.6	111.5	.7	11.7	4.3
1987 ¹	51.7	49.0	100.7	14.7	1.1	15.8	1.9	68.3	50.0	118.3	.8	10.4	4.8
1988 ⁴								76.8	56.1	132.9	1.0	10.5	4.6
1989 ⁴								73.3	53.7	127.0	1.2	11.8	4.7

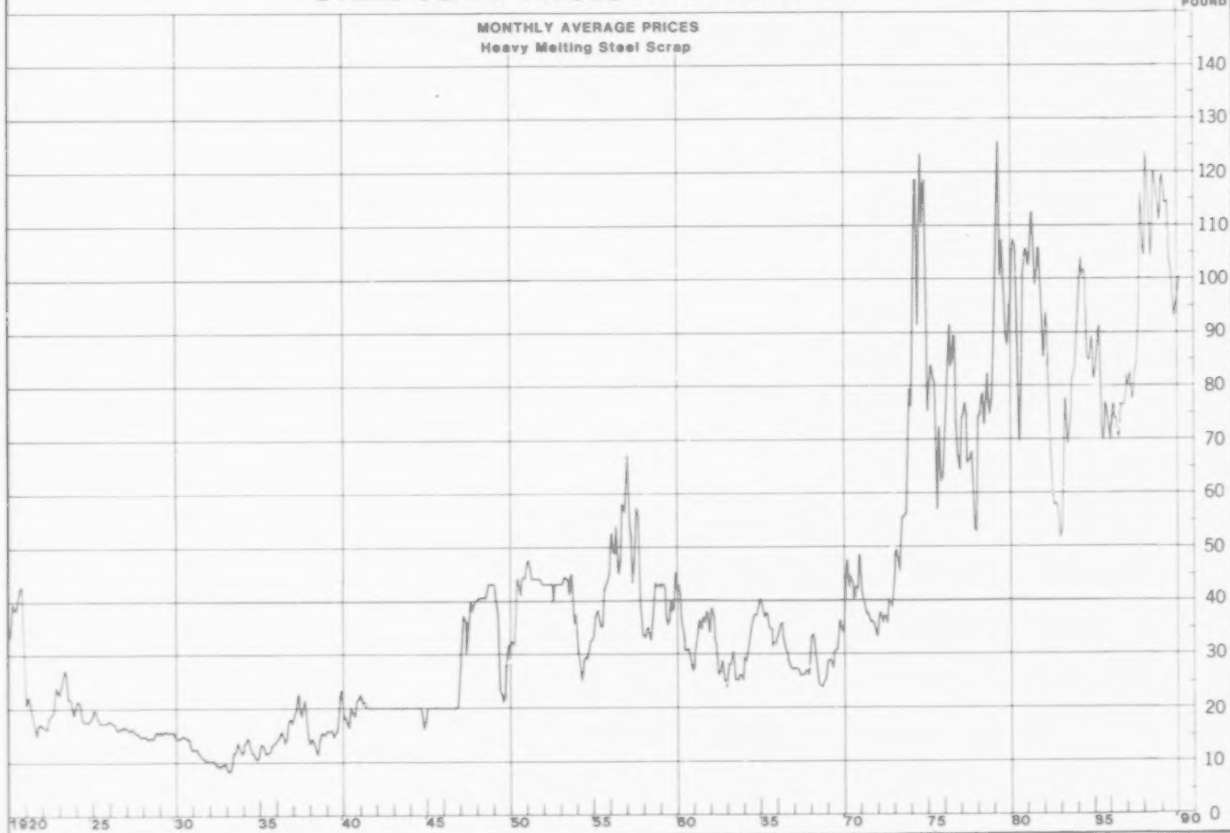
¹ Preliminary. ² Including tinplate scrap. ³ Excluding tinplate circles, strips, cobbles, etc. ⁴ Estimate. Source: Bureau of Mines

T.342

IRON AND STEEL

STEEL SCRAP PRICES AT PITTSBURGH

CENTS PER POUND



Consumption of Pig Iron in the U.S., by Type of Furnace or Equipment In Thousands of Net Tons

Year	Open Hearth	Electric	Cupola	Basic Oxy. Consen.	Air & Other Furn	Direct Casting	Total	Year	Open Hearth	Electric	Cupola	Basic Oxy. Conver	Air & Other Furn	Direct Castings	Total
1981	8,867	583	685	62,162	254	2,489	75,040	1985	4,737	503	501	44,515	56	1,100	51,411
1982	3,635	496	481	38,553	141	1,102	44,409	1986	2,325	313	428	41,582	58	899	45,604
1983	3,918	341	425	44,330	91	965	50,070	1987 ¹	N.A.	1,880	370	46,741	56	982	50,030
1984	5,720	368	469	45,551	92	1,002	53,202	1988 ²							56,100

¹ Preliminary ² Estimate Source: Bureau of Mines

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Wholesale Price of No. 1 Heavy Melting Steel Scrap at Chicago In Dollars Per Gross Ton

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	96.14	99.00	97.00	90.54	69.62	62.24	67.45	77.95	87.24	92.22	97.29	103.68	86.70
1981	95.00	91.11	105.14	107.55	97.50	88.00	88.45	97.76	92.52	82.64	75.00	74.41	91.76
1982	83.00	78.63	69.78	63.86	58.30	51.77	49.00	51.73	48.95	47.86	45.00	45.48	57.78
1983	56.14	67.00	77.70	70.33	65.00	70.52	70.08	74.00	78.00	78.00	78.30	84.00	72.42
1984	88.29	89.00	87.09	85.14	85.00	84.71	79.00	78.00	81.00	81.09	83.00	76.00	83.12
1985	78.86	82.16	84.76	79.59	68.00	62.00	64.24	73.00	72.00	71.87	69.00	69.19	72.89
1986	74.23	76.89	74.05	74.00	74.00	71.00	71.00	76.71	73.14	70.87	73.00	73.00	73.49
1987	78.00	78.00	73.00	72.00	74.15	77.00	78.73	84.00	96.52	116.00	115.47	103.73	87.22
1988	100.80	119.43	119.02	117.24	111.38	108.55	120.00	119.78	115.00	115.00	109.16	106.33	113.47
1989	114.10	118.32	113.00	113.00	113.00	113.00	108.00	108.00	108.00	101.09	96.00	94.50	108.33
1990	104.00	102.29											

Source: American Metal Market

T-339

IRON AND STEEL

World Production of Iron Ore³, by Specified Countries (Gross Weight) In Millions of Long Tons

Year	Australia	South Africa	Brazil	Canada	Chile	China	France	Mauritania	India	Liberia	Spain	Sweden	Peru	United States	USSR ¹	Venezuela	World Total ¹
1980	94.0	25.9	112.9	48.0	8.5	67.0	28.5	8.8	41.3	17.9	9.1	26.8	5.6	69.6	240.8	15.8	877.2
1981	83.3	27.9	97.9	51.2	7.6	65.0	21.3	8.6	40.7	19.4	8.4	22.9	6.0	73.2	238.6	15.3	843.2
1982	86.3	24.2	91.7	35.0	6.4	68.0	19.1	8.1	40.3	17.9	8.2	15.9	5.7	35.4	240.6	11.0	768.6
1983	69.6	16.3	87.3	32.7	5.7	70.0	15.7	7.3	38.2	14.7	7.3	14.0	4.2	37.6	241.3	9.6	728.2
1984	92.9	24.3	110.4	40.4	6.6	74.0	14.6	9.4	40.4	14.9	7.1	17.8	3.9	51.3	243.2	12.8	822.8
1985	91.4	24.0	126.2	38.9	6.4	79.0	14.2	9.2	41.9	15.1	6.4	20.1	4.8	48.8	243.7	16.0	844.7
1986	92.6	24.1	130.2	35.6	6.9	88.6	12.2	8.8	40.0	15.1	6.0	20.2	5.0	38.9	246.0	18.8	854.7
1987 ²	98.4	21.7	129.5	37.0	6.6	98.4	10.7	8.9	51.2	13.5	3.7	19.3	4.8	46.8	247.0	17.5	869.1
1988 ¹	96.1	25.2	145.0	38.7		105.0	10.7		52.3	12.8		20.4		57.5	251.0	18.8	916.4
1989 ¹	97.0	28.9	156.0	38.6		112.0	9.1		54.2	11.9		21.2		58.7	252.0	19.5	943.1

¹ Estimate. ² Preliminary. ³ Iron ore, iron ore concentrates and iron ore agglomerates. Source: Bureau of Mines

T.344

Salient Statistics of Iron Ore² in the U.S. In Millions of Long Tons

Year	Net Import Reliance % of Apparent Consumption	Production ³					Shipments ⁴	Value Mill. \$ (at Mine)	Avg. Value \$ at Mine Per Ton	Stocks—Dec. 31			Imports	Exports	Consumption	Manganese Shipments ⁵
		Total ²	Lake Superior	North-east	South-east	West				Mines	Consuming Plants	Lake Erie Docks				
1980	25	69.6	62.3	—	7.3	—	69.6	2,544.1	36.56	11.7	35.7	6.1	25.1	5.7	98.9	.2
1981	22	73.2	67.5	—	5.7	—	72.2	2,915.2	40.39	12.7	36.2	6.6	28.3	5.5	104.4	.2
1982	34	35.4	31.8	—	3.6	—	35.8	1,491.8	41.72	12.1	29.9	5.8	14.5	3.2	63.9	—
1983	37	37.6	35.6	—	2.0	—	44.6	1,945.0	43.61	4.1 ⁶	25.5	3.2	13.2	3.8	70.6	—
1984	19	51.3	49.7	—	1.6	—	50.9	2,247.7	44.17	5.3	24.0	2.9	17.2	5.0	72.5	.1
1985	21	48.8	47.4	—	1.1	—	49.4	2,077	42.03	6.0	21.3	2.4	15.8	5.0	70.6	—
1986	33	38.9	37.6	—	1.3	—	41.3	1,473	35.63	3.3	17.2	2.0	16.7	4.5	61.1	—
1987 ¹	22	46.8	46.2	—	.7	—	47.1	1,503	31.88	2.3	16.3	2.0	16.6	5.0	66.7	N.A.
1988 ⁷	18	48.2					47.8				26.0		20.0	5.5	69.0	
1989 ⁷	20	50.0					48.5				27.0		20.5	5.7	75.0	

¹ Preliminary. ² Usable; less than 5% Mn. ³ Includes by-product ore. ⁴ Excludes by-product ore. ⁵ Iron ore; 5 to 35% Mn. ⁶ New classification. ⁷ Estimate. Source: Bureau of Mines

T.345

U.S. Imports (for Consumption) of Iron Ore from Principal Countries In Thous. of Long Tons

Year	Philippines	Venezuela	Australia	Brazil	Canada	Chile	South Africa	Mauritania	Liberia	Sweden	Peru	Norway	Total
1980	—	3,602	—	1,995	17,311	322	6	—	1,590	33	193	—	25,058
1981	—	5,071	—	1,738	18,845	342	—	—	2,160	87	77	—	28,328
1982	—	1,643	—	972	9,281	47	52	—	2,399	71	35	—	14,501
1983	—	1,333	—	1,276	8,832	—	—	—	1,732	68	—	—	13,246
1984	—	1,524	—	2,533	11,190	—	—	—	1,745	84	7	—	17,187
1985	—	2,068	—	2,540	8,557	164	—	—	2,206	65	121	—	15,771
1986	56	2,309	10	3,693	8,696	93	—	65	1,487	104	91	—	16,743
1987 ¹	58	2,580	191	3,640	7,854	626	—	406	979	137	83	—	16,583
1988 ²													20,000
1989 ²													20,500

¹ Preliminary. ² Estimate. Source: Department of Commerce

T.346

Total¹ Iron Ore Stocks at End of Month in the U.S. In Millions of Metric Tons³

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	53.7	51.8	49.0	49.6	50.7	53.5	56.8	57.5	58.0	57.7	56.6	56.1
1981	54.5	53.2	50.8	49.8	51.4	53.7	56.4	58.8	59.6	60.4	60.1	60.2
1982	60.4	60.9	57.3	57.7	57.6	58.5	59.1	57.8	55.8	54.5	52.6	52.6
1983	45.5	42.6	39.6	37.5	37.2	37.4	37.0	35.3	35.7	34.7	33.8	32.6
1984	30.1	28.4	26.3	26.2	27.4	29.2	30.9	31.6	32.2	33.3	33.7	32.1
1985	30.4	28.9	28.1	28.0	29.0	29.8	29.6	30.7	31.2	30.6	29.9	29.4
1986	27.3	26.2	25.1	24.0	25.0	25.1	24.9	23.4	23.7	23.6	22.7	22.1
1987 ³	22.2	22.2	21.2	20.2	29.5	19.6	19.8	19.7	20.0	20.6	20.9	21.2
1988 ²	21.6	21.6	20.7	20.7	20.4	20.0	20.5	21.5	22.9	22.9	23.2	23.5
1989 ²	23.2	23.3	22.7	21.1	21.7	21.5	22.3	22.3	22.6	21.4		

¹ All stocks at mines, furnace yards and at U.S. docks. ² Preliminary. ³ Prior to 1987 data is in millions of long tons. [2,240 lbs. = 1 long ton] Source: American Iron Ore Association

T.347

Lard

U.S. hog slaughter increased slightly in 1989, resulting in higher lard production. U.S. lard output in 1988/89 was an estimated 940 million pounds. For the 1989/90 season, however, lard production was forecast to drop to around 915 million pounds, as hog slaughter was expected to be steady to lower. Domestic disappearance of lard in the 1988/89 season was estimated at 811 million pounds, and was forecast to decline to 800 million in 1989/90. Major uses of lard for food include baking or frying fats and margarine.

World production of lard was expected to fall by about 1 percent during 1988/89. EC production was

down sharply, and expected increases in the USSR and China were unlikely to make up for lower production elsewhere. The U.S. exported an estimated 127 million pounds of lard in the 1988/89 season. This number was forecast to drop to 120 million in the 1989/90 season. Although world demand for fats and oils was expected to be strong, abundant supplies of palm oil were likely to limit demand for lard.

Lard prices in Chicago averaged 13 cents a pound in 1989. The relatively low price made lard a cheap source of fat domestically.

Supply and Distribution of Lard in the United States In Millions of Pounds

Year	Supply						Distribution								
	Production			Farm	Total Production	Stocks Jan. 1 ²	Total Supply	Ex-ports	Total Disappearance	Domestic Disappearance				Land Per Capita Lbs.	
	Federally Inspected	Other	Total							Domestic Disappearance	Shortening	Margarine	Direct Civilian		Use as Military
1983	952	20	972	7	973	37	1,010	89	977	888	277	30	487	1	2.1
1984	911	17	928	6	939	34	973	89	935	846	263	40	491	1	2.1
1985	906	17	923	6	927	39	966	105	931	826	289	62	425	1	1.8
1986	855	14	869	5	876	35	911	104	889	785	274		417	1	1.7
1987	863	13	876	5	881	22	885	107	852	745	224		440	1	1.8
1988 ¹	932	—	932	—	932	33	965	127	928	801	265		429	1	1.7

¹ Preliminary. ² Factory & warehouse. Source: Economic Research Service, U.S.D.A.

T.348

Lard Exports² of the United States by Selected Country of Destination In Thousands of Metric Tons

Year	Asia	Belgium & Lux.	Canada	Belize	Bolivia	French Antilles	Colombia	West Germany	Haiti	Mexico	Ecuador	Netherlands	Poland	United Kingdom	Yugoslavia	Total
1982	1.1	1.0	11.4	1.4	0	.6	.1	—	2.1	24.6	—	—	0	.6	—	46.7
1983	5.4	1.0	7.3	1.5	—	.4	.1	—	1.5	19.7	—	—	—	.4	—	40.2
1984	.1	0	9.1	1.4	.1	.3	.1	—	.1	28.6	—	—	0	—	—	40.4
1985	—	0	5.6	.9	.1	.1	.1	—	3.5	35.6	—	—	—	—	—	47.4
1986	.1	—	2.4	1.3	0	.1	—	—	2.0	41.6	—	—	—	0	—	47.8
1987 ¹	—	.3	2.5	.9	0	.1	—	—	.6	43.0	—	—	—	0	—	48.2

¹ Preliminary. ² Excludes exports for civilian relief & shipments by CARE. Source: Foreign Agricultural Service, U.S.D.A.

T.352

United States Commercial¹ Production of Lard In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	79.0	74.0	86.0	79.0	81.0	72.0	66.0	76.0	74.0	90.0	84.0	78.0	939
1985	81.0	70.0	78.0	81.0	83.0	70.0	72.0	77.0	76.0	85.0	78.0	76.0	927
1986	80.0	68.0	76.0	81.0	76.0	67.0	67.0	66.0	71.0	80.0	69.0	75.0	876
1987	76.0	66.0	74.0	73.0	66.0	67.0	68.0	68.0	71.0	78.0	78.0	78.0	863
1988	73.0	73.0	83.0	76.0	74.0	74.0	69.0	79.0	81.0	84.0	84.0	82.0	932
1989 ²	77.0	71.0	82.0	78.0	80.0	73.0	N.A.	N.A.	N.A.	N.A.			

¹ Includes "Rendered Pork Fat." ² Preliminary. Source: Department of Agriculture

T.354

Consumption (edible & inedible) of Lard in the United States In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	33.9	27.6	30.5	29.3	33.4	26.0	25.8	26.2	23.1	31.1	37.5	30.5	355
1985	34.1	29.6	30.0	30.1	31.2	29.3	27.9	30.8	36.4	44.5	43.0	33.4	400.3
1986	33.3	31.4	35.6	38.1	35.6	33.8	26.3	23.3	27.5	28.4	28.9	25.6	367.8
1987	20.2	22.1	25.9	21.3	18.5	28.0	26.8	22.3	33.0	27.4	26.3	32.4	304.2
1988	25.6	27.7	31.1	29.3	28.5	27.4	25.9	28.0	37.9	34.3	35.9	40.0	371.6
1989 ¹	29.0	27.5	33.9	31.1	34.2	32.2	29.0	33.5	33.6	41.5			

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.349

LARD



Average Wholesale Price of Lard—Loose, Tank Cars, Chicago In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	20.0	19.0	19.6	19.9	19.4	19.6	22.0	21.8	22.8	21.5	21.0	18.4	20.3
1982	20.0	21.5	20.0	22.0	23.0	24.6	22.6	22.8	21.3	21.0	17.3	16.5	21.1
1983	16.4	16.7	16.4	17.4	17.1	16.4	16.1	23.2	23.4	18.3	18.7	18.8	18.2
1984	25.9	26.3	28.9	29.1	32.8	29.5	26.8	28.1	28.2	30.5	30.8	26.4	28.2
1985	24.6	24.0	24.1	22.7	20.0	18.1	16.9	17.8	15.8	15.4	19.2	16.5	19.6
1986	16.0	15.5	12.3	11.3	10.6	11.3	14.9	15.2	13.6	16.5	13.9	14.2	13.7
1987	15.5	14.4	14.6	13.7	14.7	14.9	15.7	14.5	15.5	14.7	14.7	14.4	14.8
1988	17.0	16.7	16.6	16.4	16.3	17.6	17.7	16.5	16.4	16.3	13.2	14.6	16.3
1989	14.5	14.4	14.1	13.8	13.7	14.1	14.4	13.5	14.2	14.6	14.8	13.2	14.1
1990	13.5												

Source: Economic Research Service, U.S.D.A.; Wall St. Journal; CRB.

T.350

United States Cold Storage Holdings of all Lard¹, on First of Month In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	49.4	50.4	46.9	42.2	40.5	40.1	40.7	42.6	39.5	35.6	36.7	39.1
1982	37.0	35.3	32.5	34.0	32.7	31.8	31.4	25.5	32.2	24.2	29.5	39.0
1983	37.5	38.3	31.5	36.1	39.1	43.0	41.8	41.0	35.6	40.4	41.4	45.8
1984	34.2	34.1	28.5	29.1	31.2	38.1	34.4	32.9	33.1	29.9	37.8	33.1
1985	38.7	33.7	36.6	37.1	42.0	43.1	47.3	42.2	41.0	41.3	39.3	35.9
1986	35.4	37.6	36.4	40.8	39.8	35.5	27.3	32.1	28.3	21.6	30.6	28.9
1987	21.9	31.5	30.9	27.2	28.9	29.9	27.4	27.8	28.9	28.8	38.2	36.2
1988 ²	33.0	37.2	33.8	37.1	31.2	31.9	37.8	41.1	30.1	39.0	41.7	36.7
1989 ²	37.4	38.2	37.1	27.3	34.2	37.6	41.3	32.4	28.9	41.6	38.1	

¹ Stocks in factories & warehouses (except that in hands of retailers). ² Preliminary. Source: Bureau of the Census

T.351

Lead

After 1988's boom year, during which lead prices reached 42 cents a pound, 1989 was a year of average offtake and some price softening.

Estimated domestic lead consumption for the first six months of 1989 totaled 608,200 tonnes, compared with full-year 1988's total of 1.22 million. On an implied basis, 1989's total consumption would be 1.21 million tonnes, a slight decrease, which was in line with forecasts by industry observers.

More than 90 percent of lead mined in the U.S. is extracted from Missouri's eight mines, which are the world's most cost-effective producers. The balance comes from mines in Montana, Colorado, and Idaho, which are higher-cost facilities, and from two new lead-zinc mines in Alaska. The profits of the higher-cost producers come mainly from copper, gold, silver, and zinc.

U.S. recoverable mine production of lead in the first half of 1989 was 200,711 tonnes, compared with 384,983 in full-year 1988. It was generally expected that 1989's full-year production would slightly exceed 1988's level.

The primary lead-smelting industry produces lead from concentrates, and refinery production of lead for the first six months totaled 201,147 tonnes, versus full-year 1988's 392,087.

The secondary lead smelting industry produces lead from recycled scrap material, chiefly from spent automotive batteries. According to industry analysts, the secondary lead industry is limited to

meeting a theoretical maximum of about three-quarters of domestic demand, because its production depends on the amount of discarded batteries and other scrap. For the first six months of 1989, total secondary production of lead was about 390,800 tonnes, versus 1988's full-year total of 737,000.

Lead is probably the domestic industry most affected by environmental awareness. Regulators came down hard on the industry, particularly because lead is toxic when ingested by humans. Young children and human fetuses are particularly sensitive to lead.

The government legislated stringent restrictions on the amount of lead in the air and the workplace. As a result, there has been a sharp reduction in the number of industrial uses for the metal over the last twenty years. A continued global drive towards the elimination of lead in gasoline, plumbing fixtures, and paint has effectively limited the marketplace for lead to batteries, where 75 percent of total lead usage occurs.

Continued governmental regulation may result, in time, in the complete loss of the domestic secondary lead industry, according to industry analysts.

Futures Market

Lead futures are traded on the London Metal Exchange (LME).

World Smelter (Primary & Secondary) Production of Lead In Thousands of Metric Tons

Year	Australia ³	Belgium ⁴	Bulgaria	Canada ³	China ²	France	W. Germany	Japan	Mexico ³	Peru ³	Spain	United States	U.K. ³	USSR	Yugoslavia ³	World Total
1979	427.1	60.7	119.0	252.4	170.0	159.9	316.6	294.3	223.0	90.7	127.0	1,380	276.5	690.0	133.6	5,628
1980	393.9	83.9	119.0	234.6	175.0	162.5	301.4	315.6	189.0	84.9	120.7	1,224	241.4	700.0	124.7	5,397
1981	401.8	88.2	119.0	238.2	175.0	163.9	362.3	332.3	194.7	84.2	117.1	1,139	224.5	715.0	120.5	5,384
1982	428.7	80.9	118.0	238.9	175.0	140.4	350.4	311.9	179.4	73.8	131.6	1,088	209.3	730.0	109.0	5,265
1983	405.9	84.4	116.0	241.9	195.0	128.6	352.5	317.2	197.8	72.7	143.8	1,023	226.0	745.0	127.1	5,245
1984	399.8	101.5	116.0	252.0	195.0	131.4	357.2	337.1	204.8	75.2	160.0	1,023	227.4	755.0	121.3	5,423
1985	398.9	75.3	116.0	241.6	210.0	145.8	356.3	351.6	234.0	86.8	156.1	1,110	215.1	765.0	131.7	5,588
1986 ¹	359.4	80.0	115.0	257.6	240.0	144.5	366.6	349.1	230.3	71.4	130.0	995.1	210.3	770.0	154.9	5,541
1987 ²	414.1	80.0	115.0	225.8	240.0	127.9	343.0	346.7	233.0	71.4	117.0	1,084	235.1	780.0	145.0	5,647

¹ Preliminary. ² Estimated. ³ Refined & bullion. ⁴ Includes scrap. Source: Bureau of Mines

T.355

Consumption of Lead in the United States by Products In Thousands of Metric Tons

Year	Ammunition	Bearing Metals	Pipes, Traps & Bends ²	Cable Covering	Calking Lead	Casting Metals	Glass & Ceramic Pdt's	Paints	Sheet Lead	Solder	- Storage Battery - Grids, Post, etc.	Oxides	Gasoline Additives	Type-Metal	Brass and Bronze	Total Consumption
1979	53.2	9.6	7.2	16.4	8.0	22.7	48.8	26.7	20.4	54.3	375.6	438.8	186.9	10.0	18.7	1,358.3
1980	48.7	7.8	8.6	13.4	5.7	19.0	45.4	20.7	19.8	41.4	302.2	343.1	127.9	9.0	14.0	1,070.3
1981	49.5	6.9	8.8	12.1	5.5	18.6	44.3	16.3	19.4	29.7	342.2	428.0	111.4	7.8	13.3	1,167.1
1982	44.2	6.1	8.6	15.2	4.1	25.1	34.5	13.4	15.2	28.5	312.6	391.7	119.2	2.8	11.4	1,075.4
1983	43.7	5.8	13.1	10.5	3.6	16.2	39.7	15.4	14.2	28.5	382.3	424.6	89.1	2.5	11.0	1,148.5
1984	47.8	4.7	13.7	12.3	4.0	15.8	46.1	17.4	14.7	24.4	426.3	439.2	78.9	2.2	7.0	1,207.0
1985	50.2	5.4	11.9	15.5	2.3	19.4	44.1	14.1	14.8	21.4	468.7	372.2	45.7	1.6	7.8	1,148.3
1986	44.4	5.5	12.5	17.1	1.8	10.3	40.8	14.4	17.3	21.3	488.9	364.9	28.5	.3	9.1	1,125.5
1987 ¹	46.8	5.3	11.5	20.1	1.9	16.6	N.A.	N.A.	17.4	19.8	529.4	424.2	N.A.	N.A.	9.9	1,230.4
1988 ¹	52.7	6.3	11.2	17.8		15.8			17.5	19.1	— 955.3 —				10.0	1,230.7
1989 ³	52.0	3.0	10.0	24.0					14.0	10.0	— 800.0 —				7.0	1,300

¹ Preliminary. ² Building. ³ Estimate. Source: Bureau of Mines

T.358

LEAD

Salient Statistics of Lead in the United States In Thousands of Metric Tons

Year	Net Import Reliance as a % of Apparent Consumption	Production of Refined Lead From					Total Value of Refined Mil. \$	Secondary Lead Recovered				Total Value of Secondary Mil. \$	Dec. 31 Stocks		Avg. Price (¢ per Lb.)	
		Domestic Ores ²	Foreign Ores ²	Total Primary	Secondary Sources	Total		As Refined Metal	In Anti- monial Lead	In Other Alloys	Total		Pro- ducers' Stocks ³	Con- sumers' Stocks	New York	London
1976	15	515.8	76.5	592.3	—	592.3	301.6	282.1	310.2	66.8	659.1	335.7	110.4	117.6	23.10	20.46
1977	13	486.7	62.0	548.7	.1	548.8	371.4	303.1	383.4	71.1	757.6	512.8	91.1	121.4	30.70	28.00
1978	12	501.6	63.5	565.2	1.2	566.4	419.3	282.6	409.9	76.5	769.2	570.7	98.7	125.2	33.65	29.86
1979	5	530.0	45.6	575.6	2.9	578.5	668.0	352.2	378.8	70.3	801.4	930.0	89.3	153.2	52.64	54.52
1980	5	508.2	39.4	547.6	2.1	549.7	512.6	315.2	306.7	53.7	675.6	632.4	126.0	126.2	42.46	41.21
1981	1	440.2	55.1	495.3	1.7	497.1	398.9	282.2	304.4	54.6	641.1	516.3	140.2	123.2	36.53	33.30
1982	11	459.9	52.3	512.2	.7	512.8	288.4	240.5	284.4	46.4	571.3	321.7	125.5	97.2	25.54	24.66
1983	20	463.9	55.2	519.2	.6	515.2	248.1	189.6	271.6	42.3	503.5	240.7	106.7	100.8	21.68	19.27
1984	20	324.0	65.4	389.4		396.6	219.3	263.4	327.8	42.1	633.4	266.3	135.1	97.1	25.55	20.12
1985	12	422.7	71.4	494.0		488.0	207.7	273.7	299.3	42.7	615.7	258.9	128.0	93.1	19.07	17.84
1986	20	348.2	22.1	370.3		400.0	180.0	289.5	291.9	43.3	624.8	298.9	87.0	83.8	22.05	18.43
1987 ¹	17	336.5	37.1	373.6			296.0	348.9	319.5	41.8	710.2			88.6	35.94	26.99
1988 ⁴	13	370.0	12.0	392.1							737			89.8	37.14	29.73
1989 ⁴	8	38.5	15	400										60.0	40.0	31.00

¹ Preliminary. ² And base bullion. ³ At primary smelters & refineries. ⁴ Estimates. ⁵ Net exporter. Source: Bureau of Mines

T.357

U.S. Mine Production of Recoverable Lead In Thousands of Metric Tons

Year	Arizona	Cali- fornia	Colo- rado	Idaho	Illi- nois	New York	Mis- souri	Mon- tana	Nev- ada	New Mexico	Okl- ahoma	Utah	Vir- ginia	Wash- ington	Wis- consin	Total U.S. ²
1976	.3	.1	24.3	48.7	N.A.	2.9	454.5	.1	.5	N.A.	N.A.	14.8	1.8	N.A.	N.A.	553.0
1977	.3	—	20.9	42.9	N.A.	2.5	453.8	.1	.7	N.A.	N.A.	9.7	2.0	1.1	N.A.	537.5
1978	.4	N.A.	15.2	44.8	N.A.	1.0	461.8	.1	.7	N.A.	—	2.5	1.8	N.A.	N.A.	529.7
1979	.4	N.A.	7.6	42.6	N.A.	.5	472.1	.3	—	N.A.	—	N.A.	1.6	—	N.A.	525.6
1980	.2	N.A.	10.3	38.6	N.A.	.9	497.2	.3	—	—	—	—	1.6	N.A.	—	550.4
1981	1.0	N.A.	11.4	38.4	N.A.	1.0	389.7	.2	N.A.	N.A.	—	1.7	1.6	—	—	445.5
1982	.4	N.A.	N.A.	N.A.	N.A.	1.1	474.5	.7	N.A.	N.A.	—	N.A.	—	N.A.	—	512.5
1983	.2	N.A.	N.A.	25.9	N.A.	1.3	409.3	1.2	—	.3	—	—	—	—	—	449.3
1984	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	278.3	N.A.	N.A.	—	—	N.A.	—	—	—	322.7
1985	.6	—	N.A.	33.7	N.A.	N.A.	371.0	.8	—	N.A.	—	—	—	—	—	414.0
1986	N.A.	—	N.A.	10.0	N.A.	N.A.	319.9	N.A.	—	—	—	—	—	—	—	339.8
1987 ¹	—	—	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	—	N.A.	—	—	—	—	—	311.3
1988 ³							353.2									385.0
1989 ³							360.0									400

¹ Preliminary. ² Includes Alaska. ³ Estimate. Source: Bureau of Mines

T.356

U.S. Foreign Trade of Lead In Thousands of Metric Tons

Year	Exports					Imports for Consumption				General Imports From:						
	Ore & Concen- trate	Un- wrought Lead ²	Wrought Lead ²	Scrap	Drosses, Etc.	Ores, Flue Dust or Fume & Mattes	Base Bullion	Pigs & Bars	Reclaimed Scrap, Etc.	Value Million \$	Ore, Flue Dust & Matte			Pigs & Bars		
1977		4.3	4.7	77.5		88.8	7.3	230.1	3.5	196.9	16.6	6.6	16.0	19.9	71.8	30.4
1978		3.2	5.1	98.6		61.9	4.3	225.4	3.3	203.0	6.5	6.3	19.6	16.3	80.2	25.7
1979		7.4	3.3	119.7		44.4	1.7	182.6	4.0	248.3	1.9	12.4	12.8	17.3	73.6	17.9
1980	27.6	156.5	8.0	119.7		29.6	.3	81.3	2.9	116.5	3.0	18.0	8.5	11.3	28.6	3.3
1981	33.0	16.8	6.5	59.4		27.2	.4	100.1	2.7	110.5	2.2	14.1	23.5	10.9	33.7	2.9
1982	29.1	51.0	4.6	51.8		18.9	—	94.9	4.8	69.9	7.7	14.5	4.8	7.3	23.5	8.3
1983	20.1	17.7	2.8	50.9		19.8	.1	134.4	4.2	89.9	10.0	22.7	6.1	10.9	34.9	10.1
1984	11.9	5.0	2.5	45.1	9.1	29.9	—	161.5	5.0	104.2	17.0	22.7	14.1	10.9	39.5	9.2
1985	10.0	25.4	2.0	59.9	10.0	2.6	.8	131.4	3.2	56.5	12.3	15.2	5.2	3.6	33.8	5.2
1986	4.4	11.2	1.4	59.0	7.2	4.6	.1	140.2	3.3	62.1	11.5	8.4	62.9	—	29.5	1.1
1987 ¹	8.8	4.4	5.8	52.8	3.5	.9	10.8	185.7	6.6	133.8	1.7	19.1	201.2	.1	42.6	.4
1988 ²	20.9	—	13.6	—	81.9	15.5	20.6	4.0	148.6	7.3	1.4	11.4	221.8	6.7	30.9	—
1989 ²	58.0	—	25.0	—	60.0	11.0	7.0	5.0	120.0	2.0	2.5	13.0	200.0	—	20.0	5.0

¹ Preliminary. ² Estimate. ³ And lead alloys. ⁴ Blocks, Pigs, etc. Source: Bureau of Mines

T.359

LEAD

Average Price of Pig Lead, U.S. Primary Producers (Common Corroding)¹ In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	29.90	28.89	27.98	26.57	26.50	25.89	27.88	27.45	26.64	23.12	21.48	20.12	26.03
1983	21.60	20.87	20.43	21.00	20.10	19.34	19.30	19.38	22.24	25.62	26.00	25.69	21.80
1984	26.38	26.00	26.45	27.00	26.55	29.00	32.14	30.13	25.68	24.04	26.42	23.11	26.91
1985	20.45	19.76	19.24	20.48	20.50	20.00	19.88	19.32	19.44	18.97	19.06	19.05	19.68
1986	18.70	18.41	18.55	18.93	19.58	22.41	22.63	22.52	23.43	25.53	27.93	28.37	22.25
1987	27.75	26.03	26.00	27.01	35.10	36.77	41.82	42.00	42.00	42.00	42.00	42.00	35.95
1988	38.00	34.83	34.00	34.00	34.67	36.59	37.00	37.04	38.81	39.58	40.75	42.04	37.28
1989	40.22	37.00	35.00	35.03	36.14	38.82	39.97	41.30	43.00	43.00	40.55	38.55	39.05
1990	39.73	41.74											

¹ N.Y. Delivery. Source: American Metal Market

T.360

Refiners Production¹ of Lead in the United States In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	50.3	45.2	44.0	36.1	54.3	53.0	44.2	46.4	49.2	50.6	50.8	48.6	572.6
1983	57.0	50.9	52.8	48.9	47.2	42.0	39.5	45.3	41.2	50.0	50.9	46.4	572.3
1984	51.5	51.4	43.0	40.0	39.2	26.2	28.4	29.1	25.3	40.8	28.0	26.5	429.2
1985	43.1	50.3	56.3	52.7	53.4	50.9	32.5	46.6	44.9	39.3	30.1	44.5	544.5
1986	47.4	41.6	49.4	40.2	40.2	26.5	16.9	31.3	27.5	28.6	28.5	30.1	408.2
1987	38.8	33.6	36.0	33.2	34.2	29.5	28.8	30.9	33.4	37.6	39.5	36.3	411.8
1988	34.3	35.4	39.1	34.3	36.2	34.8	31.8	25.3	32.1	49.6	40.0	39.3	432.2
1989	41.0	36.0	39.0	34.0	36.2	35.5	35.7	38.0	39.3	34.7	35.3	32.3	437.0

¹ Represents refined lead produced from domestic ores by primary smelters plus small amount of secondary material passing through these smelters. Includes GSA metal purchased for remelt. Source: American Bureau of Metal Statistics, Inc.

T.362



LEAD

U.S. Mine Production of Recoverable Lead In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	40.3	43.2	48.4	44.1	41.8	42.4	36.8	42.7	41.4	44.7	41.8	45.1	512.5
1983	44.9	39.6	37.5	36.7	35.9	28.4	35.3	43.2	37.4	37.1	38.3	34.9	449.2
1984	42.0	42.8	46.5	21.0	24.1	12.3	24.2	23.6	18.7	22.5	19.6	25.5	322.7
1985	31.8	33.3	37.6	39.3	37.1	32.5	34.5	34.8	30.9	36.9	32.5	33.0	414.0
1986	40.2	36.1	38.0	33.8	24.9	23.6	25.0	23.3	24.0	24.2	20.7	24.1	339.8
1987 ¹	23.9	23.6	27.8	23.5	27.0	26.2	28.9	24.0	28.1	28.4	23.1	25.4	311.4
1988 ¹	27.9	28.2	36.0	32.7	30.3	32.5	30.4	36.3	33.1	34.4	31.1	31.8	385.0
1989 ¹	33.3	31.0	34.4	33.2	33.8	36.1	33.2	38.6	34.3	35.1			

¹ Preliminary. Source: Bureau of Mines

T.359A

Total Stocks of Lead¹ in the United States at Refiners, at End of Month In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	65.4	67.2	65.9	60.1	65.1	73.2	70.8	64.9	71.4	72.9	78.0	79.0
1983	83.3	91.2	84.9	89.0	100.6	98.6	95.3	82.1	61.3	56.6	51.6	58.9
1984	63.3	70.3	76.1	81.5	84.2	83.5	84.9	78.4	64.8	66.2	53.0	49.7
1985	48.2	59.6	79.3	90.4	107.2	128.9	125.0	118.2	114.1	102.4	90.6	93.1
1986	96.1	104.1	116.4	115.8	116.7	105.9	89.1	81.0	57.8	41.9	30.0	22.5
1987	34.2	37.3	39.3	31.5	32.6	20.5	11.7	12.1	12.7	16.4	19.9	23.8
1988	24.7	30.5	30.2	31.8	26.5	16.6	16.2	6.6	5.1	11.6	13.1	17.0
1989	28.7	36.3	43.2	41.4	32.7	31.9	34.6	30.8	30.3	20.7	16.1	17.2

¹ Stocks at own plant & elsewhere. Source: American Bureau of Metal Statistics, Inc.

T.364

Total¹ Lead Consumption in the United States In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	98.7	87.9	97.2	94.5	84.7	88.4	72.4	96.7	88.3	98.3	81.5	86.8	1,075
1983	91.5	74.0	83.1	85.9	83.8	96.3	79.3	102.6	115.7	112.3	102.7	121.4	1,149
1984	112.7	94.1	96.8	89.5	87.3	96.4	82.7	97.3	96.7	103.2	96.9	95.1	1,207
1985	87.3	101.5	100.7	90.1	86.0	77.0	67.8	101.8	100.4	106.3	90.7	82.4	1,148
1986	96.7	85.4	79.6	90.8	86.0	84.1	71.0	94.9	105.8	110.4	94.8	96.6	1,125
1987 ²	90.8	85.8	99.8	97.8	98.0	100.2	94.3	99.7	108.2	115.1	102.8	97.2	1,230
1988 ²	96.0	96.4	115.4	98.8	104.3	103.1	91.6	100.9	101.7	109.3	103.4	95.1	1,231
1989 ²	104.7	98.3	101.2	99.2	101.3	101.6	95.2	102.7	105.9	114.0			

¹ Represents total consumption of primary & secondary lead as metal, in chemicals, or in alloys. ² Preliminary. Source: Bureau of Mines

T.365

U.S. Lead Recovered from Scrap (Lead Content) In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	45.5	48.2	48.0	47.6	46.1	44.8	34.4	44.2	41.9	44.6	41.9	41.5	571.3
1983	41.3	37.4	41.0	41.3	42.5	37.3	37.2	39.6	43.4	48.9	48.4	45.7	503.5
1984	44.4	48.6	47.6	48.5	46.6	46.7	44.5	50.0	49.0	51.7	48.1	41.3	633.4
1985	41.3	43.2	46.4	43.9	44.7	34.9	41.1	45.5	50.8	53.9	54.2	43.4	594.2
1986	49.8	52.9	53.2	50.2	59.1	46.0	41.0	50.2	46.2	51.3	50.8	47.5	614.9
1987 ¹	50.0	49.9	54.4	55.6	59.3	53.9	59.9	63.4	53.3	67.3	55.9	55.1	710.2
1988 ¹	52.2	57.5	60.1	55.9	52.2	59.4	55.3	56.3	60.7	61.8	61.6	59.7	737.0
1989 ¹	62.1	58.6	67.5	64.1	65.3	66.3	61.6	65.9	64.4	73.5			

¹ Preliminary. Source: Bureau of Mines

T.366

Domestic Shipments¹ of Lead in the United States by Refiners In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	39.3	35.8	37.0	30.7	40.9	37.8	41.9	48.1	42.6	46.7	39.8	39.7	480.4
1983	43.5	33.8	44.3	40.3	32.1	39.3	41.8	57.8	62.0	54.5	55.6	39.0	544.1
1984	46.6	43.8	36.6	34.6	36.4	26.7	26.9	35.5	38.5	39.1	40.8	29.6	435.2
1985	44.8	38.9	36.6	41.5	36.7	29.1	36.4	53.4	48.9	51.2	41.9	41.9	501.2
1986	44.5	33.5	37.1	40.9	39.3	37.3	33.7	39.3	50.7	44.6	40.4	37.6	478.8
1987	27.0	30.5	34.1	41.1	34.8	40.0	37.8	30.1	33.1	33.8	35.7	32.7	410.7
1988	33.5	29.5	39.2	33.0	41.4	44.7	32.0	34.7	33.7	43.0	38.5	35.5	438.7
1989	29.3	28.5	32.2	35.7	45.1	36.4	32.9	41.5	40.0	44.2	40.2	31.1	437.1

¹ Includes GSA metal. Source: American Bureau of Metal Statistics, Inc.

T.363

Lumber & Plywood

U.S. industry shipments of wood products in 1989 were estimated at \$59 billion which, adjusted for inflation, was down 3 percent from 1988. Housing starts of 1.4 million units were 6 percent below the previous year. Since 1990 housing starts were expected to match 1989 levels (which were the lowest since the 1982 recession), shipments were not expected to show much growth in 1990.

Nevertheless, the trend towards larger and fancier homes continued in 1989. The index of amenities in the average new home rose to 148 percent of its 1982 base from 141 a year earlier. The index was expected to rise to 151 in 1990, with the median price of a new single-family home rising to \$132,000 from \$125,700 in 1989 (and \$69,300 in 1982). The median household income of buyers of new single-family detached homes rose 10.7 percent in 1989 to \$54,483 from \$49,207 in 1988, according to the National Association of Home Builders.

U.S. lumber production fell by about 5 percent in 1989. Total production was estimated at 48.4 billion board feet, including 37.0 billion board feet of softwood lumber and 11.4 billion of hardwood. The principal market for softwood lumber was new single-family housing, which was a weak sector in 1989. About 30 percent of the softwood lumber was used in residential repairs and remodeling. The Western Wood Products Association estimated that 1990 remodeling and repairs would use about 12 billion board feet of softwood lumber, virtually unchanged from 1989. However, the nonresidential repair market was expected to slip to 2.8 billion board feet from 2.9 billion in 1989.

Remodeling demand grew at double-digit annual rates during the mid-1980s, but growth was only 1.9 percent in 1989. In the fall, Hurricane Hugo hit South Carolina, and a severe earthquake struck northern California. These disasters boosted demand for wood products, as homes were repaired or replaced. But that apparently was not enough to compensate for sluggishness in construction elsewhere in the U.S.

The most significant threat to the lumber industry was the northern spotted owl. Lawsuits by environmentalists prevented logging of about 2.5 billion board feet of old-growth timber in Pacific Northwest national forests in 1989. Attempts to have the owl declared an endangered species created an artificial shortage of large-diameter logs, which in turn idled many sawmills and accounted

for most of the 4.1 percent drop in sawmill industry employment in 1989.

However, after the lawsuits threatened the livelihood of lumberjacks, Congress passed legislation requiring the sale of 6.8 billion board feet of federal timber from forests in Washington and Oregon in fiscal 1990. The sales were expected to assure an adequate, though still tight, supply of large logs for 1990.

The U.S. Fish and Wildlife Service was expected to rule whether the spotted owl was an endangered species in 1990, and if so, what measures would be needed to protect it. Washington state had already declared the spotted owl an endangered species.

The Pacific Northwest mills that maintained full production in 1989 used smaller diameter logs, mainly from private forests. Much of that timber was harvested at only 40 years' growth, 10 to 20 years ahead of its optimal time, accelerating a trend that poses a long-term threat to the industry. U.S. softwood log production fell 7 percent in 1989 to 42.9 billion board feet.

Heavy log exports and the uncertain state of timber supplies led to significantly higher stumpage prices in the Pacific Northwest, which averaged \$357 per thousand board feet during second-quarter 1989, compared with \$286 a year earlier. The higher stumpage fees brought demands for restrictions or bans on exports of unprocessed logs, most of which went to Japan and other Asian nations. The U.S. also is a major importer of logs, primarily from Canada. In some cases, U.S. logs go to Canadian sawmills which ship the finished lumber back to the U.S.

Approximately 28 percent of the softwood lumber used in the U.S. in 1989 was Canadian. The lumber trade is governed by the 1986 Memorandum of Understanding signed by both nations, instead of the free-trade agreement. Prior to the Memorandum, which imposed a 15 percent export tax or equivalent stumpage fee increase on softwood lumber exported from Canada, Canadian lumber held about one-third of the U.S. market. Canadian housing starts fell 3.2 percent in 1989.

Futures Market

Random lengths lumber futures and options on those futures are traded on the Chicago Mercantile Exchange.

U.S. Housing Starts: Seasonally Adjusted Annual Rate In Thousands Total Is Actual Starts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1982	843	866	931	917	1,025	902	1,166	1,046	1,144	1,173	1,372	1,303	1,062
1983	1,586	1,699	1,606	1,472	1,776	1,733	1,785	1,910	1,710	1,715	1,785	1,688	1,703
1984	1,897	2,260	1,663	1,851	1,774	1,843	1,732	1,586	1,698	1,590	1,689	1,612	1,750
1985	1,711	1,632	1,800	1,821	1,680	1,676	1,684	1,743	1,676	1,834	1,698	1,942	1,742
1986	2,004	1,923	1,887	1,945	1,848	1,842	1,782	1,807	1,687	1,657	1,637	1,833	1,805
1987	1,840	1,787	1,715	1,622	1,607	1,583	1,592	1,587	1,685	1,535	1,659	1,391	1,621
1988	1,391	1,511	1,528	1,576	1,392	1,463	1,478	1,459	1,463	1,532	1,567	1,577	1,488
1989	1,678	1,465	1,409	1,343	1,308	1,406	1,420	1,329	1,264	1,428	1,361		

LUMBER

Salient Statistics of Lumber in the United States

Year	Industrial Roundwood Used for Production								Fuel-wood Consumption	Consumption All Pdt's	National Forest Stumpage Prices					
	Lumber	Pulp Products	Ply-wood & Veneer	Other Pdt's. ²	Total ²	Total Imports	Total Exports	Total Consumption			All Eastern Hard-woods	Douglas Fir	Southern Pine	Western Hemlock	Ponderosa Pine	Maple Sugar
\$ Per 1,000 Board Ft.																
1979	6,115	4,110	1,370	410	12,955	3,655	2,135	14,470	2,270	16,740	46.80	394.40	155.20	200.80	239.00	68.90
1980	5,300	4,390	1,175	390	12,090	3,250	2,350	12,995	3,190	16,185	52.40	432.20	155.40	212.70	206.10	70.10
1981	4,780	4,125	1,180	360	11,090	3,165	2,090	12,160	3,225	15,390	50.90	350.20	172.00	163.40	195.20	67.80
1982	4,635	3,970	1,135	345	10,825	3,015	1,995	11,840	3,480	15,320	56.40	118.20	127.20	44.50	66.90	71.10
1983	5,370	4,165	1,365	390	12,010	3,710	2,110	13,610	3,425	17,040	60.10	161.60	140.60	62.20	104.00	55.10
1984	5,770	4,355	1,400	410	12,685	4,165	2,060	14,790	3,920	18,710	90.10	132.90	139.40	61.80	122.70	80.50
1985	5,665	4,165	1,420	400	12,450	4,340	2,070	14,720	4,080	18,800	65.40	126.20	90.70	50.50	101.40	70.00
1986 ¹	6,485	4,545	1,470	440	13,715	4,360	2,305	15,770	4,105	19,875	69.90	160.70	103.60	74.70	156.60	66.20
1987 ¹											88.10	190.20	135.70	105.40	213.60	80.50

¹ Preliminary. ² Excludes fuelwood. Includes cooperage logs, poles & piling, fence posts, etc. Sources: National Lumber Manufacturers Ass'n.; U.S. Dept. of Commerce; Forest Service T.367

United States Lumber Shipments In Millions of Board Feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	2,707	2,791	2,538	2,343	2,512	2,530	2,454	2,716	2,708	2,851	2,494	2,350	32,896
1981	2,424	2,379	2,752	2,755	2,633	2,765	2,395	2,431	2,260	2,382	2,045	1,989	30,834
1982	1,637	1,837	2,148	2,336	2,308	2,513	2,363	2,450	2,260	2,506	2,353	2,162	28,935
1983	2,435	2,290	2,632	2,683	2,775	2,764	2,537	2,669	2,737	2,795	2,404	2,445	35,239
1984	2,589	2,603	3,022	2,875	2,852	2,993	2,756	2,950	2,688	3,154	2,922	2,397	37,221
1985	2,666	2,602	3,013	3,496	3,349	3,031	2,944	3,294	3,162	3,221	2,828	2,809	37,023
1986	2,955	2,899	3,478	3,321	3,538	3,498	2,979	3,344	3,291	3,689	3,480	3,791	42,618
1987 ¹	3,350	3,302	3,735	3,686	3,656	4,039	3,671	3,812	3,540	4,034	3,470	3,865	47,761
1988 ¹	3,790	4,092	4,320	4,257	4,261	4,309	3,688	3,929	4,038	3,871	3,656	3,649	49,134
1989 ¹	3,914	3,417	3,877	3,846	4,163	4,420	3,754						

¹ Preliminary. Source: National Lumber Manufacturers' Association

T.368

Stocks (Gross) of Softwood² Lumber in the United States, Beginning of Month In Millions of Board Feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	5,335	5,301	5,374	5,721	5,769	5,568	5,534	5,570	5,659	5,776	5,832	5,826
1981	5,800	5,883	6,065	6,098	6,123	6,213	6,015	6,103	6,232	6,284	6,285	6,075
1982	5,894	6,016	6,068	6,042	5,983	5,915	5,853	5,867	5,977	6,163	5,986	5,881
1983	5,809	5,770	5,950	5,997	5,924	5,824	5,772	5,817	5,858	5,870	5,862	5,964
1984	5,940	6,021	6,097	6,178	6,287	6,283	6,257	6,186	6,176	6,265	6,239	6,327
1985	6,155	6,299	6,415	6,488	6,282	6,198	6,445	6,535	6,555	6,603	6,770	6,792
1986 ²	4,765	4,842	4,959	4,846	4,886	4,748	4,605	4,615	4,722	4,840	4,929	5,038
1987 ¹	5,040	5,039	5,112	5,203	5,181	5,097	4,927	4,928	4,755	4,855	4,787	4,823
1988 ¹	4,771	4,867	4,950	4,994	4,939	4,894	4,685	4,677	4,765	4,823	4,951	4,979
1989 ¹	4,999	4,896	4,818	4,837	4,810	4,740	4,746	4,748				

¹ Preliminary. ² Prior to 1946 data includes hardwoods. Source: National Lumber Manufacturers' Association

T.369

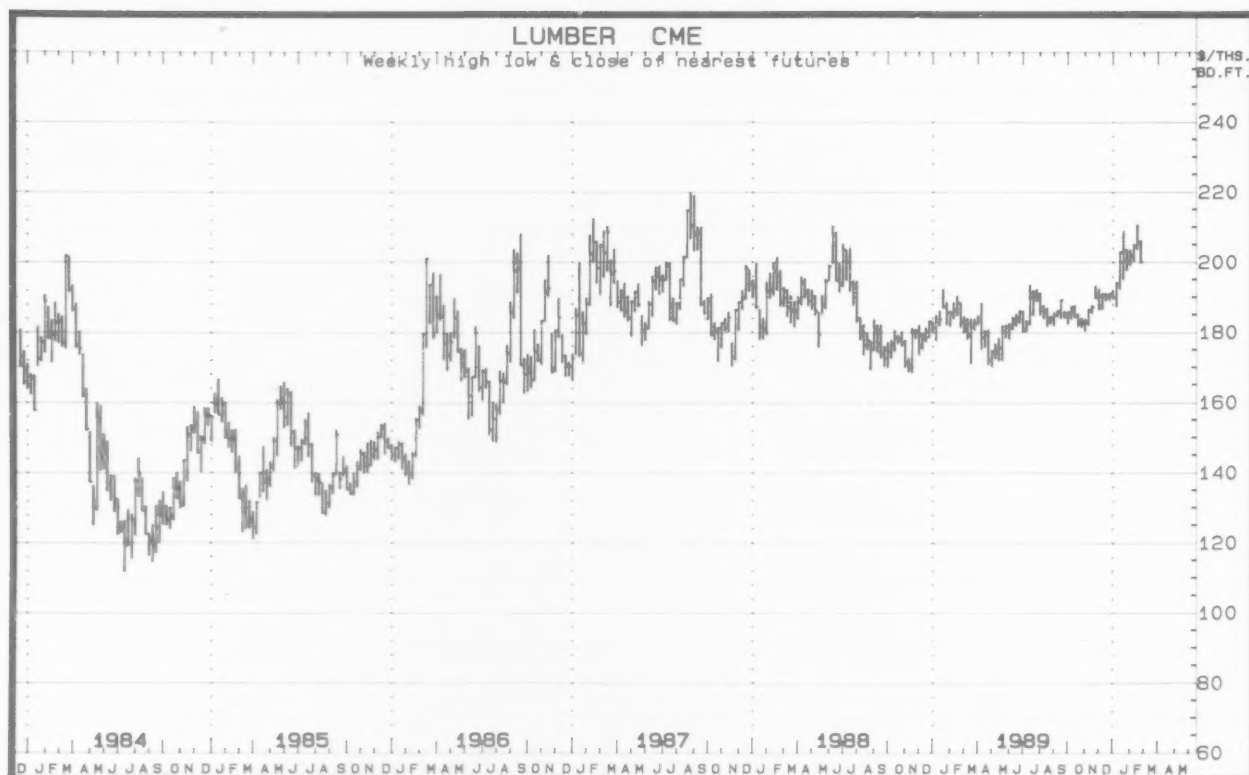
Lumber Production¹ in the United States In Millions of Board Feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	2,798	2,855	2,879	2,257	2,307	2,486	2,479	2,783	2,818	2,903	2,480	2,329	33,361
1981	2,523	2,542	2,818	2,780	2,651	2,588	2,483	2,554	2,307	2,379	1,831	1,765	30,928
1982	1,810	1,891	2,148	2,281	2,251	2,338	2,376	2,560	2,445	2,333	2,247	2,004	28,849
1983	2,484	2,481	2,682	2,623	2,645	2,718	2,585	2,714	2,748	2,787	2,504	2,345	35,370
1984	2,740	2,678	3,104	2,983	2,828	2,968	2,685	2,933	2,776	3,154	2,814	2,295	37,436
1985	2,727	2,718	3,085	3,296	3,256	3,101	3,034	3,299	3,196	3,387	2,851	2,649	37,352
1986	3,092	3,046	3,347	3,362	3,405	3,355	2,961	3,441	3,397	3,820	3,496	3,623	42,676
1987 ²	3,293	3,307	3,742	3,616	3,518	3,905	3,662	3,737	3,617	3,942	3,458	3,829	49,395
1988 ²	3,814	4,042	4,389	4,247	4,245	4,137	3,671	4,056	4,180	4,040	3,715	3,641	49,576
1989 ²	3,849	3,311	3,758	3,773	4,025	4,273	3,677						

¹ Adjusted with Census reports on lumber production. ² Preliminary. Source: National Lumber Manufacturers' Association

T.374

LUMBER



Month-End Open Interest of Lumber Futures at Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	10,839	10,587	9,948	10,130	11,452	11,736	12,461	11,644	13,734	14,251	12,829	9,338
1981	8,882	9,053	8,029	8,102	7,639	8,161	8,554	7,586	7,690	8,809	8,808	9,067
1982	9,328	8,982	6,990	7,460	6,578	5,648	4,629	5,789	6,088	8,282	10,490	9,915
1983	10,492	10,610	10,793	11,425	9,070	8,187	7,963	8,552	8,324	6,771	6,595	7,512
1984	8,673	8,614	8,973	8,810	7,487	7,631	7,519	8,157	7,757	8,955	9,374	9,949
1985	9,702	8,984	8,447	9,045	9,764	9,224	8,708	8,346	7,397	6,965	6,687	6,383
1986	5,783	6,936	9,571	9,471	6,342	5,519	5,039	6,356	4,784	5,673	5,646	5,844
1987	6,777	6,554	6,847	6,263	5,946	7,375	6,509	7,596	6,841	6,914	6,222	6,151
1988	6,356	6,213	5,963	6,192	5,125	5,424	6,003	6,111	5,323	6,100	5,437	6,872
1989	7,698	7,462	8,107	7,877	7,095	8,246	8,555	7,323	7,058	7,070	6,307	5,929

Source: Chicago Mercantile Exchange

T.370

Volume of Trading of Lumber Futures at Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	59,063	61,288	73,412	86,057	81,960	68,528	76,296	65,740	73,660	76,984	59,076	58,376	838,676
1981	57,173	45,937	54,295	60,517	51,007	58,879	49,427	49,428	45,592	57,021	55,044	51,614	635,934
1982	51,268	45,193	44,717	44,116	40,828	47,512	34,624	35,432	29,835	47,761	51,046	44,387	516,619
1983	54,976	56,706	51,520	48,327	77,107	73,554	62,053	76,322	68,019	68,228	44,266	49,925	731,003
1984	51,170	70,031	57,075	68,314	88,009	59,592	60,156	65,739	60,035	61,012	52,496	59,939	753,568
1985	71,719	55,737	56,718	65,762	62,766	57,422	43,525	39,151	36,517	34,703	29,556	27,972	581,548
1986	29,570	34,647	61,718	64,176	44,778	49,929	35,203	42,212	44,961	35,847	28,912	30,577	502,530
1987	40,351	49,167	40,504	39,211	27,954	33,505	31,345	38,876	34,039	39,437	32,052	30,648	437,089
1988	35,451	32,410	32,886	30,386	28,100	37,508	27,550	33,454	29,743	24,632	26,131	23,238	371,489
1989	29,963	25,857	23,947	31,427	26,789	26,712	20,258	19,514	18,790	18,965	17,286	14,395	273,903

Source: Chicago Mercantile Exchange

T.371

LUMBER

Residential Construction Contracts Awarded (All Types) in U.S. In Millions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	4,227	4,167	5,957	6,617	5,855	5,805	5,810	4,726	4,704	4,718	3,648	3,677	60,164
1982	2,991	3,045	4,542	4,645	5,060	5,674	5,188	5,354	5,560	5,548	5,784	5,401	59,210
1983	5,080	4,942	7,945	7,859	8,594	10,223	8,532	9,113	8,698	8,223	7,604	6,596	93,567
1984	6,809	6,989	9,085	9,518	10,831	9,879	8,845	9,162	8,062	8,494	7,489	5,956	101,389
1985	6,684	6,192	9,884	10,111	10,523	9,595	10,240	9,971	9,465	9,878	8,295	7,542	108,662
1986 ¹	7,443	7,208	10,002	12,416	12,033	11,923	11,463	10,145	9,950	10,636	8,361	8,034	122,896
1987 ¹	7,350	7,920	11,228	11,276	10,260	10,986	11,279	10,919	10,445	10,290	8,432	8,716	121,128
1988 ¹	6,739	7,997	11,031	10,679	11,004	12,430	9,912	11,119	10,519	10,473	9,450	8,897	120,867
1989 ¹	7,515	7,137	10,118	10,999	11,389	11,568	10,318	11,554	10,159	10,517			

¹ Preliminary. Source: F. W. Dodge Co.

T.372

United States Imports of Sawmill Products In Ths. of Metric Feet Beginning 1988²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	756	848	966	980	992	934	842	465	660	755	728	591	9,517
1982	530	585	601	792	848	888	874	888	962	758	916	781	9,423
1983	879	933	1,055	885	1,153	1,099	1,048	1,090	1,057	1,118	1,092	885	12,294
1984	941	1,135	1,108	1,098	1,073	1,172	1,202	1,191	1,298	1,185	1,104	1,108	13,615
1985	967	1,190	1,212	420	1,431	1,445	1,318	1,308	1,307	1,395	1,146	1,039	14,178
1986	1,113	1,159	1,325	1,380	1,438	1,411	1,594	1,272	1,334	1,012	803	766	14,607
1987 ¹	1,078	1,222	1,329	1,293	1,332	1,383	1,329	1,182	1,449	1,264	1,210	1,146	15,217
1988 ²	2,339	2,676	3,158	2,799	2,971	3,318	2,884	2,799	2,846	2,872	2,695	2,190	33,547
1989 ¹	6,026	5,036	5,868	5,405	5,432	5,301	4,205	6,479	5,146				

¹ Preliminary. ² Prior to 1988 data are in millions of board feet. Source: Department of Commerce

T.373

High, Low & Closing Prices of May Lumber Futures at Chicago In Dollars per 1,000 Board Feet

Year of Delivery	Year Prior to Delivery										Delivery Year					Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1981 High	221.0	210.2	222.0	225.5	233.5	222.0	215.5	214.0	220.0	210.7	205.2	198.3	181.4	190.4	181.0	233.5
Low	176.0	164.0	202.0	210.6	218.0	191.9	195.3	194.2	205.7	175.5	185.3	169.5	164.3	163.2	167.1	163.2
Close	178.1	204.5	220.8	218.5	219.1	196.9	198.5	207.4	208.5	194.5	195.8	169.8	169.6	178.4	175.5	—
1982 High	—	—	—	220.3	214.3	201.5	186.0	183.0	182.8	180.0	166.5	153.1	151.9	145.2	127.5	220.3
Low	—	—	—	204.6	199.0	183.3	160.0	157.1	162.4	163.4	147.6	142.7	137.5	120.6	115.5	115.5
Close	—	—	—	211.0	199.3	184.0	163.2	164.8	179.2	169.1	154.0	142.9	142.4	126.8	122.6	—
1983 High	192.7	186.5	178.4	171.0	168.5	170.9	169.3	179.6	191.7	195.3	209.5	206.6	194.6	193.6	221.7	209.5
Low	180.0	172.0	170.0	151.5	154.8	155.2	157.6	157.9	178.6	181.1	189.8	190.7	183.8	182.7	191.5	151.5
Close	185.0	174.0	175.5	157.5	158.6	166.0	159.7	178.7	185.9	191.0	204.9	190.7	184.6	193.2	217.2	—
1984 High	237.1	240.1	245.5	234.5	231.0	221.5	213.7	217.6	209.4	205.0	194.3	199.7	201.9	188.2	150.4	245.5
Low	228.8	228.6	222.9	221.0	214.0	200.4	195.3	198.5	196.8	189.5	184.0	182.0	186.0	148.2	125.1	125.1
Close	231.8	239.5	230.6	228.5	214.8	207.4	213.0	199.3	202.8	194.2	185.7	197.0	186.7	148.6	130.8	—
1985 High	219.0	215.5	187.0	178.7	167.5	176.2	165.0	171.3	174.1	174.0	176.7	163.0	148.3	147.4	149.9	225.0
Low	214.0	185.6	167.0	160.5	147.4	153.5	151.0	154.0	165.9	158.5	163.0	146.6	121.1	122.5	136.1	121.1
Close	215.5	185.6	175.5	166.0	154.2	155.5	157.5	169.5	170.8	173.3	164.0	147.0	124.2	137.4	148.7	—
1986 High	164.5	173.0	176.4	176.0	170.5	158.7	154.9	158.2	160.5	161.9	156.6	161.9	197.0	196.5	189.5	197.0
Low	153.0	154.0	162.0	165.5	154.5	145.2	145.6	147.7	153.0	155.0	143.3	140.0	159.1	169.0	175.1	140.0
Close	155.0	163.0	171.1	168.1	156.9	150.3	152.7	157.4	157.9	158.1	144.3	159.9	183.9	177.4	180.6	—
1987 High	173.0	172.5	172.0	174.5	169.4	177.1	179.0	176.0	172.1	173.5	181.2	198.5	203.6	193.9	193.7	203.6
Low	160.0	161.1	163.2	162.3	155.5	159.0	162.0	162.0	163.0	159.5	158.8	177.1	184.0	178.8	183.2	155.5
Close	167.0	166.0	166.3	163.5	159.9	172.0	166.6	170.5	165.6	160.0	179.5	189.0	192.4	185.9	187.7	—
1988 High	—	—	—	171.0	170.8	184.5	183.0	179.5	176.8	188.3	192.0	197.9	190.3	195.7	190.3	197.9
Low	—	—	—	164.5	168.0	169.5	172.1	165.6	166.5	173.7	177.6	184.3	181.5	186.6	175.7	164.5
Close	—	—	—	169.0	169.9	181.5	172.1	168.4	174.6	181.8	189.1	185.4	188.6	190.1	179.1	—
1989 High	177.2	180.0	178.5	181.7	184.0	179.7	181.4	184.6	184.9	190.4	194.5	193.6	185.7	188.2	178.2	—
Low	170.1	175.0	175.1	176.0	176.6	174.2	175.1	177.3	178.5	179.8	185.9	182.8	179.6	170.3	171.9	—
Close	173.0	176.8	178.2	177.1	177.5	178.9	177.5	182.4	181.9	189.0	188.3	183.4	183.5	174.5	172.3	—
1990 High	—	193.2	193.5	194.7	196.7	195.9	195.8	195.7	194.5	196.9						—
Low	—	188.6	189.0	191.2	192.1	190.7	191.5	190.2	189.8	191.4						—
Close	—	190.5	191.0	193.0	195.2	192.5	194.3	190.6	192.0	194.4						—

Source: Chicago Mercantile Exchange

T.377

LUMBER & PLYWOOD

Average Index Price of Softwood Plywood, Western (Inland & Other Non-Southern) 1982 = 100¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	293.8	308.0	302.3	256.9	275.4	301.7	324.5	346.2	324.0	324.2	330.3	343.3	310.9
1981	326.4	330.0	323.3	332.2	319.7	329.4	322.1	311.0	301.9	283.7	286.7	296.7	313.6
1982	291.3	288.4	288.7	283.5	279.2	287.6	282.3	278.8	274.9	272.5	276.5	284.6	282.4
1983	292.0	299.9	302.3	302.3	304.4	327.5	325.4	314.4	302.3	307.1	303.4	308.7	307.5
1984	312.4	320.1	318.0	308.7	289.7	288.8	290.3	308.6	305.2	307.2	302.4	302.4	304.5
1985	301.2	291.1	287.0	285.5	303.9	319.7	324.5	320.1	304.6	308.0	301.6	300.5	304.0
1986	300.1	298.2	312.2	329.5	321.1	311.0	310.1	307.7	311.2	309.9	308.4	304.4	310.3
1987 ¹	109.0	113.2	114.2	109.8	107.4	107.0	108.3	112.8	120.5	111.3	112.7	110.7	111.4
1988	112.4	113.0	110.9	108.9	106.2	113.4	117.7	108.2	118.8	114.2	115.4	116.8	113.0
1989	119.4	125.6	127.3	129.2	130.4	126.5	132.9	124.4	127.6	137.6			

¹ Data prior to 1987 are the index for 1967 = 100. Source: Bureau of Labor Statistics (0831-01)

T.379

Average Index Price of Softwood Yellow Southern Pine (Dressed) Flooring (C & Better) 1982 = 100¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	322.0	322.2	317.2	281.2	280.1	287.3	296.4	304.1	295.1	282.3	286.9	293.7	297.4
1981	291.9	292.2	294.7	308.4	313.9	309.5	297.0	291.6	279.4	273.6	267.0	279.7	291.6
1982	278.0	273.4	273.4	285.3	283.1	298.4	305.1	288.6	287.5	279.3	284.9	293.4	285.9
1983	303.0	314.8	319.3	321.3	325.5	334.9	330.0	323.4	308.3	313.5	316.2	328.2	319.9
1984	334.0	337.8	336.1	334.5	320.4	317.1	318.8	318.4	308.5	305.4	302.4	304.8	319.9
1985	303.4	294.2	295.8	292.4	326.4	347.0	321.1	297.1	288.0	283.4	279.6	279.5	300.7
1986	288.8	288.8	304.1	324.5	317.0	306.1	302.6	303.6	295.5	287.9	289.1	290.3	299.9
1987 ¹	103.5	106.8	111.5	112.8	111.5	116.1	122.9	120.7	120.8	113.7	113.5	115.9	114.1
1988	118.1	119.6	118.4	118.6	115.7	115.2	114.9	106.3	101.6	102.9	108.5	109.5	112.4
1989	110.0	109.7	107.9	106.1	104.5	108.8	113.1	107.3	105.5	112.1			

¹ Data prior to 1987 are the index for 1967 = 100. Source: Bureau of Labor Statistics (0811-02)

T.381

Average Index Price of Rough Softwood Lumber—No. 2 1982 = 100¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	97.1	96.8	97.2	96.2	95.3	94.9	95.5	94.2	94.1	93.7	92.1	91.7	94.9
1983	91.1	94.0	94.0	98.5	99.0	100.2	100.2	98.9	96.3	95.8	94.6	95.1	96.5
1984	95.9	97.5	97.8	97.6	94.9	94.8	91.5	90.4	89.9	89.2	89.8	89.1	93.2
1985	90.2	90.2	88.9	88.4	88.5	89.0	88.4	89.8	88.1	87.6	87.2	87.1	88.6
1986	86.2	86.7	87.9	89.4	90.0	90.2	90.3	90.6	90.5	90.7	91.2	92.0	89.6
1987 ¹	97.8	98.4	100.4	101.7	103.1	103.0	104.2	105.8	108.7	106.6	106.3	105.6	103.5
1988	105.2	106.4	109.6	111.3	112.7	111.3	113.1	113.5	109.1	108.4	107.6	106.5	109.6
1989	108.4	113.8	116.0	119.0	122.6	120.1	123.9	122.7	119.7	121.4			

¹ Data prior to 1987 are the index for Dec. 1980 = 100. Source: Bureau of Labor Statistics (0811-04)

T.380

Average Index Price of Douglas Fir Softwood Lumber—Dressed 1982 = 100¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	357.2	360.1	371.0	381.1	381.8	378.3	387.4	408.4	424.0	410.4	378.7	368.8	383.9
1980	363.3	367.1	358.8	327.1	329.6	353.2	358.7	360.0	357.1	354.5	352.9	353.4	353.0
1981	347.2	330.4	321.8	332.7	328.5	333.1	320.1	318.3	296.8	277.6	268.0	267.0	311.8
1982	266.4	259.4	258.5	265.6	262.1	271.8	277.8	268.9	269.6	261.8	259.9	272.5	266.2
1983	312.1	370.3	376.2	375.5	390.2	404.7	407.0	381.4	345.3	332.0	318.7	324.7	361.5
1984	322.8	351.7	369.7	364.3	335.8	322.8	307.8	309.2	312.5	301.6	312.8	325.8	328.1
1985	332.9	341.5	353.1	345.0	358.9	386.6	379.4	343.3	313.7	299.2	283.8	301.9	336.6
1986	314.2	303.6	316.1	348.0	358.2	331.1	341.4	339.3	345.4	333.5	329.4	317.6	331.5
1987 ¹	118.2	122.6	122.4	122.7	121.3	121.5	124.6	127.6	138.2	128.2	126.1	127.7	125.1
1988	129.8	130.9	131.6	134.2	132.0	135.7	140.6	138.6	142.7	140.5	138.7	133.6	135.7
1989	135.9	140.7	142.0	154.3	159.9	163.0	167.8	162.4	161.3	158.1			

¹ Data prior to 1987 are the index for 1967 = 100. Source: Bureau of Labor Statistics (0811-01)

T.382

Magnesium

Increased usage in the automotive and desulfurization markets continued to place additional demands on magnesium production facilities in 1989. Total U.S. usage in 1988 was 100,792 tons, a 19 percent gain over 1987's level, in a continuation of recent consumption trends.

Increases in domestic consumption in 1987 and 1988 caused stock drawdowns, and primary producers in some cases were working at 100 percent of capacity to keep up with demand for the metal. Total 1988 production was 141,983 tons of primary magnesium and 50,207 tons of secondary magnesium. That exceeded 1987 output of 124,396 tons of primary production and 45,165 tons of secondary.

Prices remained stable in 1989, with primary magnesium ingot quoted at \$1.63 a pound and diecasting alloy at \$1.43 a pound during the year.

The U.S. produces enough magnesium to meet its needs and is a net exporter. Export business in

magnesium is brisk and for the period of Jan.-May 1989 totaled 25,614 tons of magnesium of all kinds, versus imports of 4,384 tons. In 1988, exports were 49,802 tons, while imports totaled 14,407 tons.

Magnesium is mainly produced in ten nations, and 1988 world output was estimated at 337,850 tons, a three percent gain over 1987. The U.S. was the world's leading producer, followed by the USSR with 90,990 tons and Norway with 51,700. The U.S. was also the leading secondary producer of magnesium, followed by Japan with 10,020 tons and the USSR with 8,165 tons.

Resources from which magnesium may be recovered are virtually unlimited and are globally widespread. Resources of dolomite and magnesium-bearing evaporite minerals are plentiful. Magnesium-bearing brines are estimated in the billions of tons, and magnesium can be recovered from seawater along coastlines where salinity is highest.

World Production of Magnesium (Primary and Secondary) In Short Tons

Year	Primary										Secondary Production				
	Brazil	Canada	China	France	Italy	Japan	Norway	USSR	United States	Yugoslavia	World Total ¹	Japan	United Kingdom	United States	USSR
1976	—	6,715	5,500	8,857	9,740	12,335	42,778	69,000	119,957	—	274,882	8,379	3,000	30,553	N.A.
1977	—	8,414	5,500	9,570	9,663	10,379	42,070	72,000	125,958	—	283,554	8,360	3,000	32,684	N.A.
1978	—	9,159	6,600	9,370	10,668	12,304	43,166	77,000	149,463	0	317,755	12,057	3,000	36,228	N.A.
1979	—	9,937	6,600	9,968	9,653	12,531	48,697	79,000	162,464	0	338,850	18,058	3,000	37,222	8,000
1980	—	10,199	7,700	10,282	8,693	10,199	48,890	83,000	169,477	0	348,440	26,314	3,000	40,461	8,000
1981	—	9,370	7,700	8,006	11,900	6,247	52,472	86,000	153,782	4,254	339,731	31,345	2,100	46,256	9,000
1982	331	8,700	7,700	10,593	10,960	6,123	39,598	89,000	102,197	4,697	279,899	23,887	1,940	43,232	9,000
1983	551	6,600	7,700	12,208	8,473	6,643	32,897	91,000	115,431	5,252	286,755	14,343	1,900	46,329	9,000
1984	1,323	8,800	7,700	14,299	8,257	7,830	54,343	94,000	159,207	4,700	360,459	17,258	1,102	48,357	9,000
1985	2,866	7,700	7,700	15,212	8,667	9,321	60,301	96,000	149,614	5,000	362,381	23,032	992	45,523	9,000
1986 ²	4,960	7,700	7,700	15,400	13,687	8,946	62,305	98,000	138,493	5,000	362,191	15,890	1,100	46,084	9,000
1987 ¹	6,400	7,700	7,700	15,400	12,100	9,017	55,100	99,200	137,123	5,000	354,740	11,336	1,000	49,786	9,000
1988 ¹	6,614	8,818	7,716	15,432	5,512	11,023	57,320	100,309	156,527	4,409	373,680			55,115	
1989 ¹	6,614	7,716	7,716	15,432	8,818	12,125	60,627	99,207	163,140	4,409	385,805			55,115	

¹ Estimate. ² Preliminary. Source: Bureau of Mines

T 383

Salient Statistics of Magnesium in the United States In Short Tons

Year	Production				Ex-ports ²	Imports for Consumption	Con-sumer Stocks Dec. 31 ³	\$ Price per Pound ⁴	Domestic Consumption of Primary Magnesium					
	Primary (Ingot)	New Scrap	Old Scrap	Total					Castings	Wrought	Structural Products	Alumin. Alloys	Other Uses ⁵	Total
1976	119,957	19,024	11,529	30,553	13,444	14,907	17,295	.87-.92	7,051	10,241	17,292	54,320	32,841	104,453
1977	125,958	20,170	12,524	32,694	28,061	5,964	11,838	.96-.99	7,201	12,632	19,833	56,086	27,657	103,576
1978	149,463	22,135	14,093	36,228	41,807	6,668	12,583	.99-1.01	7,651	11,075	18,726	58,798	31,434	108,958
1979	162,464	23,340	13,882	37,222	54,280	4,754	13,901	1.01-1.09	7,460	11,562	19,022	60,549	29,273	108,844
1980	169,477	22,907	17,554	40,461	56,761	3,757	14,393	1.07-1.25	5,847	11,620	17,467	54,490	23,831	95,788
1981	153,782	22,073	24,183	46,256	34,855	6,897	11,367	1.25-1.34	4,951	10,376	15,327	50,518	25,616	91,461
1982	102,197	19,801	23,431	43,232	39,613	4,784	10,268	1.34	3,600	10,128	13,728	39,878	20,993	74,599
1983	115,431	21,591	24,738	46,329	46,690	6,350	11,329	1.38	3,341	11,435	14,776	46,026	21,174	81,976
1984	159,207	21,594	26,763	48,357	48,337	9,381	6,920	1.43-1.48	4,193	10,246	14,439	48,673	26,775	89,887
1985	149,614	19,579	25,944	45,523	40,322	9,271	6,168	1.48-1.53	5,000	11,949	16,949	40,850	25,703	83,502
1986	138,493	20,737	25,347	46,084	43,992	9,210	5,473	1.53	6,357	11,269	17,626	40,569	18,924	77,119
1987 ⁶	137,123	23,934	25,852	49,786	48,677	11,961	6,185	1.53	6,650	11,781	18,431	54,878	19,691	93,000
1988 ¹	156,521			55,115	49,802	14,407		1.58-1.63						111,332
1989 ¹	163,140			55,115	52,823	11,177		1.63						115,742

¹ Estimate. ² Metal & alloys in crude form, & scrap. ³ Primary magnesium. Gov't agencies continue to hold quantities of primary magnesium. ⁴ Magnesium ingots (99.8%) f.o.b. Valasco, Texas. ⁵ Distributive or sacrificial purposes. ⁶ Preliminary. Source: Bureau of Mines T 384

Manganese

The U.S., which mines no manganese, imported 448,969 short tons of manganese ore and dioxide, alloy, and metal in the first half of 1989, up 5 percent from the level in the same 1988 period. Manganese is used mainly in steel production in the U.S. and, to a lesser extent, in output of dry cell batteries.

After 1988's comparatively slow import year, record levels of imports were expected in almost all categories in 1989. Month-to-month comparisons indicated a boom year for silicomanganese, ferromanganese, and manganese units containing 35 percent or more manganese.

U.S. imports of silicomanganese for consumption in first-half 1989 amounted to 74,765 short tons of mineral content. Total 1988 imports of silicomanganese were 152,884 short tons of mineral content.

Imports of ferromanganese for consumption in first-half 1989 were higher than in the 1988 period, totaling 8,724 tons mineral content of low carbon, 26,782 tons of medium carbon, and 206,487 tons of high-carbon ferromanganese. Total 1988 imports of all grades of ferromanganese were 415,858 short tons of mineral content.

The U.S. imported manganese ore from seven nations, including South Africa. The metal was ex-

empt under the U.S. Anti-Apartheid Act, since manganese is considered an item needed for the Strategic Materials Stockpile. However, efforts to find other suppliers were being made.

Gabon was the largest supplier of manganese ore to the U.S., and in the first six months of 1989 provided 45,538 short tons, mineral content. The next major source of manganese ore was Brazil, which supplied 33,575 tons, followed by Australia with 20,963 tons.

Manganese is an essential element for man, but excessive exposure can be harmful. As a result, manganese can be an industrial poison. The EPA recently included manganese metal and compounds among a number of substances which, if released into the environment, must be reported annually.

Total world production of manganese is estimated to be 25.6 million tons of ore, with more than 50 percent of that total mined in South Africa and the Soviet Union. Brazil, Gabon, and Australia are other key producers.

In recent years, manganese nodules on the ocean floor have captured the attention of scientists and industrial concerns, and efforts are being made to exploit this resource on a commercial scale.

World Production of Manganese Ore (Gross Weight) In Thousands of Short Tons

Year	Australia ³ 37-53 ⁵	Brazil 30-50	Bulgaria 29	China 30	Gabon 50-53	Ghana 30-50	Hungary ⁴ 30-33	India 10-54	Japan 26-27	Mexico 27-50	Morocco 50-53	South Africa 30-48+	USSR 39-30	Yugoslavia 25-45	World Total
1980	2,204	2,515	54	1,760	2,366	275	91.0	1,865	87.7	492.9	144.8	6,278	10,750	33	29,086
1981	1,555	2,251	50	1,760	1,640	246	78.0	1,682	96	637	121	5,555	10,090	34	25,967
1982	1,238	2,580	50	1,760	1,667	176	91	1,642	86	561	106	5,750	10,830	30	26,701
1983	1,510	2,306	50	1,760	2,047	191	65	1,412	83	386	81	3,181	10,890	35	24,147
1984	2,038	2,969	50	1,760	2,336	296	74	1,246	68	525	65	3,361	11,100	23	26,100
1985	2,208	2,781	42	1,760	2,579	348	69	1,367	23	437	48	3,969	10,900	28	26,742
1986	1,818	2,866	44	1,760	2,767	375	69	1,337	7	506	44	4,100	10,300	28	26,158
1987 ¹	2,043	2,650	44	1,760	2,650	325	71	1,436	—	425	47	3,188	10,300	28	25,101
1988 ²	2,189	2,094		3,000	2,480			1,459		484		3,792	10,100		26,300
1989 ²	2,200	2,100		3,000	2,600			1,450		480		3,900	10,000		26,500

¹ Preliminary. ² Estimated. ³ Metallurgical Ore. ⁴ Concentrate. ⁵ Ranges of percentage of manganese. Source: Bureau of Mines T.385

Salient Statistics of Manganese in the United States In Thousands of Short Tons (Gross Weight)

Year	Net Import Reliance as a % of Apparent Consump- tion	Manganese Ore (35% or More Mn)						Ferromanganese				Manganiferous Ore ²				Silico- manganese		
		Alloys and Metal	Pig Iron Steel	Dry Cells, Misc.	Imports For Con- sumption	Ex- ports	Con- sump- tion	Stocks, Dec. 31 ²	Domestic Produc- tion	Imports for Consump- tion	Ex- ports	Con- sump- tion	Ship- ments	Value Mil. \$ ⁴	Prod- uction	Ship- ments	Ex- ports	Im- ports
1980	98	727.5	131.5	211.7	698		1,071	1,030	189.5	605.7	11.7	789.1	173.9	2.4	188	162		
1981	98	744.8	147.8	184.0	639		1,077	1,036	192.7	671.2	14.9	820.9	174.8	2.9	173	173		
1982	99	412.3	83.9	112.6	238	29	609	751	119.0	492.7	10.3	439.2	31.5	.3	69	83	3.0	62.1
1983	99	274.3	105.5	150.9	368	19	531	617	86	341.6	8.4	446.3	33.5	.2	N.A.	63	6.4	139.7
1984	98	N.A.	117.0	N.A.	338	238	615	582	N.A.	409.3	6.8	492.2	88.4	9	N.A.	N.A.	5.3	138.5
1985	100	262.7	90.0	247.0	387	56	545	589	N.A.	366.9	6.9	466.0	20.0		N.A.	N.A.	3.1	165.5
1986	100	N.A.	74.0	N.A.	463	42	500	455	N.A.	395.7	4.3	376	14		N.A.	N.A.	2.0	198.6
1987 ¹	100	N.A.	102.0	N.A.	341	63	521	456	N.A.	368	3	409	N.A.				.7	191.4
1988 ⁵	100				512	68	554	458		531	3	468						
1989 ⁵	100				630	70	580	550		545	15	450						

¹ Preliminary. ² Including bonded warehouses; excludes Gov't stocks; also excludes small tonnages of dealers' stocks. ³ 5 to 35% Manganese. ⁴ Combined value for total Manganese ore & Manganiferous ores. ⁵ Estimate. Source: Bureau of Mines T.386

MANGANESE

U.S. Consumption of Manganese by End Uses In Thousands of Short Tons

Year	Appliances & Equip- ment	Batteries	Cans & Containers	Chem- icals	Constr- uction	Machinery	Oil & Gas Indus.	Trans- porta- tion	Other	Total
1979	59	17	61	59	291	217	70	296	180	1,250
1980	50	17	50	50	245	165	80	215	157	1,029
1981	50	16	45	50	250	170	90	215	141	1,027
1982	30	21	31	29	155	94	40	114	162	672
1983	33	25	28	22	168	102	28	124	162	668
1984	36	34	38	34	170	97	36	139	43	627
1985	32	39	35	22	164	78	34	124	170	698
1986	27	43	31	23	148	65	25	95	273	730
1987 ¹	31	43	35	44	165	77	30	105	162	692
1988 ²										825

¹ Preliminary. ² Estimate. Source: Bureau of Mines, American Metal Market

T.390

Manganese Ore (35% or More Mn) Imported² into the U.S. In Thousands of Short Tons (Mn Content)

Year	Bel/ Lux.	Zaire	Brazil	Congo (Brazz.)	Canada	Ghana	Pan- ama	Mexico	Morocco	Gabon	Aus- tralia	Turkey	South Africa	Total	Value Mill. \$
1978	—	13.2	52.1	9.5	—	—	—	18.4	14.5	127.0	32.6	—	11.0	278.2	33.6
1979	—	—	51.7	22.5	—	—	—	2.1	10.7	49.2	55.3	—	52.1	243.6	27.5
1980	—	—	33.6	—	—	—	—	18.6	5.3	79.9	106.0	—	86.4	329.8	46.4
1981	—	—	38.9	—	—	—	—	25.8	13.6	90.6	34.3	—	97.5	300.7	42.6
1982	—	—	3.0	—	1.7	—	—	1.5	5.0	23.2	18.8	—	57.9	111.1	16.2
1983	—	—	39.1	—	—	—	—	25.6	—	85.5	15.1	—	12.7	178.1	19.9
1984	—	—	44.3	—	—	—	—	16.3	—	66.1	21.0	—	17.3	165.0	16.0
1985	—	—	59.8	—	—	—	—	21.8	.1	64.1	43.1	—	—	188.8	22.6
1986	.2	—	38.7	—	—	—	3.2	14.8	.2	119.1	35.5	—	14.0	225.6	23.1
1987 ¹	—	—	29.7	—	—	—	—	3.7	.1	88.4	48.7	—	—	170.6	15.2
1988 ³			28.8					43.9	.1	145.3	32.6			250.0	29.1
1989 ³														309	

¹ Preliminary. ² Imported for consumption. ³ Estimate. Source: Dept of Commerce

T.387

Average Price of Ferromanganese¹ (High Carbon²-F.O.B. Plant) In Dollars Per Gross Ton—Carloads

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1976	432½	432½	432½	432½	432½	432½	432½	432½	432½	432½	425	417½	430.63
1977	417½	417½	417½	399½	399½	399½	399½	399½	399½	399½	399½	399½	404.00
1978	399½	399½	399½	399½	422.17	425	425	425	425	425	425	425	416.26
1979	440	440	440	465	490	490	490	490	490	493	510	510	479.04
1980	510	510	510	510	510	510	510	510	510	510	510	510	510.00
1981	510	510	510	510	510	510	510	510	510	510	510	510	510.00
1982	510	510	510	510	510	510	510	510	510	510	510	510	510.00
1983	510	510	510	510	510	510	510	510	510	510	510	510	510.00
1984	510	510	510	510	510	510	510	510	510	—	No Quotes		510.00
1987	No Quotes				326.25	331.88	339.50	345	355	358	363	373	348.95
1988	382.50	382.50	414.50	422.50	435.63	440	457.50	475	530	550	550	550	465.84

¹ Domestic standard. ² Prior to May 1987 prices are for 78% Mn-F.O.B. plant. Source: American Metal Market.

T.389

Meats

Total U.S. meat production in 1989 was a record 61.9 billion pounds, up from 60.8 billion in 1988. Poultry output increased, while red meat production declined slightly from 1988 levels.

Beef production in 1989 was expected to be just under 23 billion pounds, down slightly from the year-earlier level. Per capita consumption of beef was forecast at 69 pounds in 1989, down from 72.3 pounds in 1988. U.S. beef and veal exports rose by 54 percent in 1989, with sharply higher shipments to Japan. About three-quarters of U.S. beef and veal exports go to Japan, mostly in frozen form. Exports to South Korea and Canada were higher in 1989, while beef shipments to the EC dropped because of the bovine growth hormone issue. U.S. imports of beef were down about 10 percent in 1989, due primarily to lower imports from Australia.

U.S. pork production in 1989 was almost 15.8 billion pounds, about 1 percent higher than a year earlier. Per capita consumption was 63.2 pounds, a slight decrease from 1988's level. U.S. pork imports in 1989 dropped by 21 percent. Production declines in Denmark and Canada, two major suppliers to the U.S., partly explained the reduction in imports. Pork exports were sharply higher, as ship-

ments to Mexico and Japan increased significantly.

U.S. turkey meat production rose 7 percent in 1989, due to higher prices in the first half of the year and an outlook for lower feed costs late in the year. Higher prices for U.S. turkeys and trade restraints led to a drop in exports. U.S. turkey consumption in 1989 was a record 16.9 pounds per capita and was expected to rise to 17.5 pounds in 1990.

During 1980-1989, U.S. chicken production increased by an estimated 50 percent. Total chicken slaughter in 1989 was estimated at 17.9 billion pounds, 6 percent higher than the year earlier. Broiler exports reached a record level in 1989, as abundant supplies of dark meat made export prices attractive. For the first time in a decade, the Soviet Union turned to the U.S. market for broiler meat. U.S. chicken consumption was estimated at 68.3 pounds per capita in 1989, and was expected to surpass beef consumption in 1990.

Prices of broiler and turkey meat were forecast to be lower in 1990, while prices of pork and beef were expected to rise. That was likely to result in further consumption gains in poultry, at the expense of red meats.

World Total Meat¹ Production In Millions of Metric Tons

Year	Argentina	Australia	China ³	Canada	Czechoslovakia	Denmark	France	West Germany	Japan	Italy	New Zealand	Poland	Brazil	South Africa	United Kingdom	United States	U.S.S.R.
1978	3.5	2.8		1.7	1.3	1.1	3.5	4.1	1.7	2.0	1.1	2.7	3.1	.8	2.2	17.5	13.3
1979	3.5	2.5		1.7	1.3	1.2	3.7	4.2	1.8	2.1	1.1	2.7	3.0	.9	2.2	17.1	13.2
1980	3.3	2.3		1.9	1.3	1.2	3.7	4.3	1.9	2.2	1.1	2.6	3.2	.9	2.3	17.7	12.6
1981	3.4	2.2		1.9	1.3	1.2	3.7	4.3	1.9	2.2	1.2	2.0	3.2	.8	2.3	17.7	12.7
1982	2.7	2.5		1.9	1.2	1.2	3.5	4.2	1.9	2.2	1.1	2.3	3.4	.9	2.2	17.0	12.7
1983	2.5	2.1	13.2	1.9	1.3	1.3	3.5	4.2	1.9	2.3	1.2	2.2	3.4	.8	2.4	17.8	13.6
1984	2.7	2.0	14.4	1.9	1.3	1.3	3.7	4.4	2.0	2.4	1.1	2.1	2.9	.9	2.4	17.8	14.0
1985	2.8	2.2	17.0	1.9	1.3	1.3	3.6	4.4	2.1	2.3	1.2	2.3	3.0	.9	2.4	17.9	14.1
1986	2.9	2.3	19.2	2.0	1.3	1.4	4.6	4.6	2.1	2.4	1.1	2.6	2.8	.8	2.3	17.8	14.6
1987 ²	2.7	2.3	18.9	1.9	1.3	1.4	4.6	4.6	2.2	2.4	1.2	2.5	3.4	.8	2.4	17.4	14.8

¹ Production of beef & veal, mutton & lamb, goat meat, & pork. Horsemeat included from 1976. ² Preliminary. ³ Predominately pork production. Source: Foreign Agricultural Service, U.S.D.A. T.395

Production and Consumption of Red Meats in the United States (Carcass Weight)

Year	Beef			Veal			Lamb & Mutton			Pork (Excluding Lard)			All Meats		
	Comm. Production	Consumption		Comm. Production	Consumption		Comm. Production	Consumption		Comm. Production	Consumption		Production	Consumption	
		Total	Per Capita		Total	Per Capita		Total	Per Capita		Total	Per Capita		Total	Per Capita
	Mil. Lbs.		Lb. ³	Mil. Lbs.		Lb. ³	Mil. Lbs.		Lb. ³	Mil. Lbs.		Lb. ³	Mil. Lbs.		Lb. ³
1979	21,262	23,522	105.5	411	450	2.0	282	332	1.5	15,270	15,353	68.8	37,225	39,657	177.8
1980	21,469	23,320	103.4	379	410	1.8	310	345	1.5	16,431	16,574	73.5	38,590	40,648	180.2
1981	22,214	23,756	104.3	415	438	1.9	327	360	1.6	15,719	15,927	69.9	38,675	40,481	177.8
1982	22,366	23,998	104.3	423	457	1.99	356	381	1.65	14,121	14,425	62.6	37,266	39,261	170.5
1983	23,060	24,710	106.2	428	457	1.97	367	388	1.67	15,117	15,369	66.1	38,972	40,924	175.9
1984	23,418	24,900	106.1	479	503	2.14	371	398	1.70	14,720	15,396	65.6	38,988	41,197	175.5
1985	23,557	25,342	106.9	499	527	2.22	352	386	1.63	14,728	15,651	66.0	39,136	41,903	176.8
1986	24,213	25,935	107.4	509	550	2.3	331	375	1.6	13,998	15,008	62.1	39,051	41,868	173.3
1987	23,405	25,205	103.3	416	449	1.8	309	360	1.5	14,312	15,237	62.5	38,442	41,251	169.1
1988 ¹	23,424	25,252	102.5	387	412	1.7	329	387	1.6	15,623	16,560	67.2	39,763	42,611	173.0
1989 ²	22,983	24,303	97.8	345	354	1.4	339	413	1.0	15,754	16,533	66.5	39,421	41,594	167.3

¹ Preliminary. ² Estimate. ³ Carcass weight. Source: Economic Research Service, U.S.D.A. T.400

MEATS

Total Red Meat Imports (Carcass Weight Equivalent²) of Importing Countries In Thous. of Metric Tons

Year	Belgium & Lux.	Canada	Czechoslovakia	France	Rep. of Korea	W. Germany	Greece	Hong Kong	Italy	Israel	Japan	Netherlands	Spain	Switzerland	Un. Kingdom	United States	USSR
1977	121.2	194.3	21.4	556.2		627.0	110.9		612.9	30	649.0	175.3	59.2	26.0	1,280	1,100	496.2
1978	143.9	172.9	21.0	630.4		633.0	142.0		632.1	37	665.4	187.5	112.3	33.8	1,276	1,296	132.0
1979	99	140	21	541	108	648	140		684	71	610	149	124	25	1,245	1,348	469
1980	91	111	21	590	15	700	134		722	33	486	168	27	23	1,122	1,210	706
1981	88	110	21	579	45	687	80		690	55	612	146	16	31	1,072	1,058	786
1982	79	112	29	618	82	692	157	68	824	56	546	119	28	25	1,137	1,175	679
1983	107	121	25	676	78	728	216	82	832	46	599	108	26	27	1,072	1,212	779
1984	79	130	15	711	39	796	194	238	823	43	636	105	36	21	1,015	1,280	691
1985	79	132	15	760	19	843	208	296	948	47	647	116	36	15	955	1,476	587
1986	77	126	15	841	14	837	221	300	961	42	712	104	92	16	1,007	1,506	635
1987 ¹	77	177	15	815	14	880	205	310	980	47	765	102	100	16	1,010	1,544	644

¹Preliminary. ²Excludes fat, offals & live animals. Source: Foreign Agricultural Service, U.S.D.A.

T.397

Total Red Meat Exports (Carcass Weight Equivalent²) of Principal Countries In Thousands of Metric Tons

Year	Argentina	Australia	Brazil	Canada	China	Denmark	France	Ireland	Romania	Netherlands	N. Zealand	Poland	United States	Un. Kingdom	USSR	Uruguay	Yugoslavia
1977	669.6	1,335	240.0	112.1		695.6	312.2	363.8		697.2	790.9	131.8	236.0	185	49.2	134.6	88.0
1978	823.7	1,377	178.1	117.1		753.4	267.2	359.3		751.6	724.7	141.0	256.6	177	38.0	118.8	113.4
1979	728	1,306	111	133		832	306	342		785	783	155	211	179	33	84	82
1980	487	1,087	170	182		857	362	453	208	843	796	141	195	228	35	128	98
1981	508	966	281	207		905	415	324	245	932	817	60	240	243	53	185	72
1982	546	1,184	361	247	230	909	401	311	160	879	846	52	213	194	32	182	107
1983	438	947	404	242	264	945	387	341	185	957	938	93	225	296	25	236	83
1984	266	747	483	280	273	952	489	301	177	1,066	815	68	227	344	27	142	98
1985	272	860	540	313	278	958	503	370	265	1,158	876	13	210	284	30	131	97
1986	261	1,033	355	320	219	1,007	629	473	280	1,216	863	122	279	306	14	198	55
1987 ¹	308	1,024	265	326	226	989	604	419	300	1,295	945	125	321	316	14	121	97

¹Preliminary. ²Excludes fat, offals & live animals. Source: Foreign Agricultural Service, U.S.D.A.

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United States Meat Exports by Type of Product In Metric Tons

Year	Beef and Veal			Goat, lamb mutton, fresh or frozen	Pork		Other pork, pickled, salted or otherwise cured	Other pork, canned	Sausage, bologna, frankfurters	Variety meats fresh or frozen ¹	Other meats ²	Total
	Fresh or frozen	Canned	Pickled or cured		Fresh or frozen	Hams & shoulders, cured or cooked						
1977	40,982		517	1,755	116,282	2,941	1,216	2,919	1,810	3,426	173,060	353,106
1978	51,710	2,296	1,263	1,375	84,120	3,934	1,655	7,524	2,932	3,653	185,831	353,095
1979	53,823	1,625	1,955	562	83,058	3,380	912	8,912	1,123	3,003	163,930	331,946
1980	55,003	1,995	2,505	595	69,966	3,327	820	8,438	1,667	3,296	200,417	355,454
1981	68,608	2,826	3,235	972	86,652	2,363	1,079	9,130	1,662	3,819	209,981	397,870
1982	78,781	3,028	3,858	676	58,541	1,358	774	7,514	1,289	3,404	230,344	394,857
1983	86,962	1,584	4,500	632	62,141	1,794	601	5,581	695	3,139	218,311	389,735
1984	105,995	1,936	3,598	878	46,098	1,474	621	3,837	513	2,603	217,019	388,177
1985	105,792	1,134	2,603	460	34,394	1,175	450	4,066	638	2,908	247,582	405,591
1986	179,434	918	4,052	558	20,969	650	474	4,796	349	3,214	249,460	469,085
1987 ³	207,014	657	3,298	668	29,145	1,227	617	3,597	376	4,582	230,174	487,606

¹Edible animal organs. ²Includes sausage ingredients, cured (excluding canned); meat and meat products canned (n.e.s.); and baby food, canned. ³Preliminary. Source: Foreign Agricultural Service. Compiled from reports of the U.S. Department of Commerce

T.399

MEATS

U.S. Imports of Meats and Meat Preparations In Thousands of Metric Tons²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	171	167	131	155	140	153	162	168	180	167	120	118	1,832
1982	127	106	160	169	167	215	158	234	246	194	124	114	2,015
1983	208	177	170	178	187	176	189	181	171	169	123	104	2,030
1984	180	167	171	198	161	128	209	198	189	226	175	159	2,160
1985	193	179	207	213	214	221	230	232	226	198	196	201	2,511
1986	225	196	197	179	180	213	260	232	232	223	237	168	2,544
1987 ¹	211	218	236	240	222	268	277	244	249	244	191	156	2,755
1988 ²	132	108	127	112	104	125	99	114	91	88	89	74	1,263
1989 ¹	114	86	96	91	98	94	91	95	74	87	89		

¹ Preliminary. ² Data Prior to 1988 are in millions of pounds. Source: Dept. of Commerce

T.401

United States Meat Imports by Type of Product In Metric Tons

Year	Beef and Veal			Lamb, Mutton, & goat, except canned	Pork			Mixed sausage	Other meats n.s.p. ⁵	Variety meats, fresh or frozen	Total
	Fresh or frozen ¹	Canned, including sausage	Other prepared or preserved ²		Fresh and frozen	Canned ³	Other prepared or preserved ²				
1981	544,610	34,932	23,303	14,384	98,226	94,102	1,496	1,935	2,103	7,896	826,547
1982	607,184	37,747	17,402	8,649	125,282	96,831	1,547	2,372	2,242	7,373	909,452
1983	565,997	59,073	16,766	8,752	121,707	125,593	2,300	2,176	1,911	8,396	916,604
1984	516,960	57,863	19,864	8,693	207,703	142,423	3,372	2,243	2,121	7,129	974,078
1985	594,476	64,277	18,314	15,565	254,538	160,802	6,312	2,192	2,672	9,163	1,133,933
1986	637,718	45,779	20,778	16,596	263,488	151,730	8,221	2,640	2,849	8,512	1,164,786
1987 ⁶	671,152	56,653	17,450	17,204	301,585	147,796	9,387	2,688	4,222	8,310	1,246,037

¹ Includes prepared items. ² Includes pickled and cured. ³ Includes canned hams, shoulders, and bacon. ⁴ Includes fresh and cured sausages. ⁵ Mostly mixed luncheon meats. ⁶ Preliminary. Source: Foreign Agricultural Service. Compiled from reports of the U.S. Department of Commerce.

T.402

U.S. Exports of Meat and Meat Preparations In Thousands of Metric Tons²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	143	141	169	148	189	180	128	144	123	174	154	153	1,847
1982	129	147	124	131	167	147	111	108	112	133	143	115	1,566
1983	114	104	136	133	115	118	121	99	130	127	134	119	1,449
1984	112	104	134	106	114	103	128	119	123	139	121	119	1,422
1985	119	110	118	112	116	116	130	139	118	139	122	123	1,461
1986	124	123	123	132	139	121	125	147	159	188	170	171	1,722
1987 ¹	151	133	151	157	176	167	177	178	180	176	191	181	2,017
1988 ²	72	69	75	81	87	90	93	105	99	102	103	105	1,081
1989 ¹	84	91	108	105	110	119	116	117	101	121	122		

¹ Preliminary. ² Data prior to 1988 are in millions of pounds. Source: Dept. of Commerce

T.403

Average Wholesale Prices of Meats In Cents Per Pound

Year	Composite Retail Price		Net Farm Value of Pork ⁵	Cow Beef Canner & Cutter Midwest	Choice, Steer Beef Carcasses, Centr. U.S. (600-700 Lb.)	Fresh Beef, Steer Carcasses Choice, E. Coast	Lamb Carcasses Choice & Prime (55-65 Lb.) East Coast	Pork, Fresh Loins, (8-14 lbs.) N.Y.	Hams Midwest Skinned, Smoked 14-17 Lb.	Pork ¹ Bellies 12-14 lbs. Midwest	Live Broilers Georgia
	of Beef Grade 3 (Choice)	of Pork ³									
1981	238.7	152.4			99.84	99.8	127.67	113.70	95.55	68.38	26.5
1982	242.5	175.4	88.0		101.31	101.3	122.15	111.51	111.98	78.19	25.0
1983	238.1	169.8	76.5	78.48	97.83	97.8	125.86	115.91	75.60	60.58	27.0
1984	239.6	162.0	77.4	74.70	98.01	100.1	131.89	115.81	78.22	60.08	32.0
1985	232.6	162.0	71.4	74.13	90.76	91.3	145.93	113.59	67.50	59.50	28.0
1986	230.7	178.4	82.4	71.31	88.98	89.0	139.89	104.78	80.01	65.82	32.5
1987	242.5	188.4	82.7	83.70	97.21	97.2	150.41	126.51	80.96	63.11	26.5
1988 ²	254.7	183.4	69.4	88.04	103.34	103.1	139.50	97.49 ⁶	70.05	43.54	31.5
1989 ⁴	269.9	182.9	70.4	94.43	107.78	107.8	131.35	121.31 ⁶	69.39	34.14	34.7

¹ Prior to 1983 prices are for cured pork cuts, picnics at N.Y. (4-8 lb.). ² Preliminary. ³ Sold as retail cuts (ham, bacon, loin, etc.). ⁴ Estimate. ⁵ Gross farm value minus by-product allowance. ⁶ 14-18 lb. midwest. Sources: Bureau of Labor Statistics; Department of Agriculture

T.404

MEATS

Average Wholesale Price of Steer Beef Carcass, Choice¹, at Midwest Markets In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	102.26	103.70	103.15	99.41	102.00	105.18	110.11	111.96	107.97	105.49	101.44	100.57	104.40
1981	99.80	96.10	94.32	99.68	103.32	106.52	107.20	103.90	102.96	96.02	94.56	93.70	99.80
1982	97.40	101.20	103.80	109.50	115.10	111.20	102.60	100.80	95.50	93.00	92.90	92.62	101.30
1983	93.90	96.55	100.62	107.76	105.00	102.47	97.72	95.01	92.10	91.24	91.57	99.82	97.83
1984	105.74	102.86	105.14	103.50	99.62	98.54	101.26	97.61	94.37	92.38	99.08	101.22	100.11
1985	99.50	97.42	92.00	89.20	89.52	88.48	82.22	80.02	81.14	91.11	99.68	98.84	90.76
1986	92.26	86.82	85.04	83.34	86.42	83.58	89.25	90.98	90.50	91.80	95.70	92.04	88.98
1987	89.70	91.69	92.86	100.56	107.80	105.71	99.29	95.45	96.87	96.80	95.34	94.50	97.21
1988	97.15	99.50	103.47	105.25	111.70	106.38	97.09	101.04	103.15	104.36	104.75	106.20	103.34
1989	107.30	107.98	112.43	113.84	112.62	106.35	104.91	104.31	102.08	103.13	107.05	111.41	107.78

¹ 500-600 pounds. Source: Economic Research Service, U.S.D.A.

T.405

Production² (Commercial Slaughter) of All Meats¹ in the U.S. In Millions of Pounds—Carcass Weight

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	3,398	3,050	3,099	3,315	3,311	3,089	3,070	3,016	3,221	3,577	3,097	3,349	38,590
1981	3,417	3,014	3,389	3,299	3,071	3,118	3,041	3,044	3,247	3,433	3,185	3,417	38,675
1982	3,152	2,894	3,296	—	9,097	—	—	9,165	—	—	9,659	—	37,266
1983	3,151	2,787	3,269	3,051	3,163	3,299	3,002	3,440	3,435	3,523	3,472	3,383	38,974
1984	3,219	3,092	3,349	3,079	3,411	3,205	3,045	3,362	3,111	3,672	3,324	3,119	38,987
1985	3,421	2,938	3,162	3,295	3,488	3,085	3,277	3,402	3,252	3,544	3,123	3,145	39,131
1986	3,482	2,942	3,133	3,477	3,388	3,156	3,281	3,180	3,259	3,506	2,986	3,261	39,050
1987 ³	3,410	2,817	3,198	3,160	2,975	3,102	3,157	3,135	3,331	3,521	3,197	3,378	38,442
1988 ³	3,242	3,070	3,354	3,158	3,206	3,317	3,170	3,505	3,462	3,511	3,399	3,358	39,763
1989 ³	3,265	3,003	3,326	3,130	3,396	3,342	3,047	3,482	3,317	3,524	3,411	3,172	39,415

¹ Except for pork production & lard. ² Represents the total dressed carcass weight of livestock slaughtered under Federal inspection, exclusive of meats from condemned animals. ³ Preliminary. Source: Agricultural Marketing Service, U.S.D.A.

T.406

Cold Storage Holdings of All¹ Meats in the United States, at End of Month In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	735.3	712.6	695.4	715.5	706.5	641.9	578.5	514.3	510.0	584.2	678.6	749.6
1981	790.3	782.9	775.9	817.2	795.2	716.6	628.6	538.9	508.6	546.8	552.2	578.2
1982	553.4	524.2	536.0	—	—	503.9	—	—	473.9	—	—	553.8
1983	573.4	571.0	576.3	607.6	619.2	595.5	569.8	543.3	535.3	576.7	667.6	679.3
1984	692.9	707.7	738.1	777.5	818.9	776.3	713.8	627.6	646.2	674.9	681.4	696.0
1985	735.0	702.9	721.2	772.7	784.9	758.6	738.2	677.1	654.2	645.2	633.0	607.4
1986	616.8	615.3	622.5	658.2	667.2	638.8	618.6	572.0	541.1	572.4	564.3	566.2
1987	597.6	599.0	598.2	590.8	560.2	498.7	515.6	495.9	523.0	575.6	613.8	622.9
1988	664.6	689.5	716.6	759.4	721.2	670.7	670.7	633.9	644.3	664.0	701.5	716.4
1989 ²	745.0	762.2	749.0	767.1	735.0	686.4	654.4	579.0	559.0	541.1	555.1	529.4

¹ Includes beef and veal, mutton and lamb, pork and products, rendered pork fat, and miscellaneous meats. Excludes lard. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.407

Cold Storage Holdings of Frozen Beef¹ in the United States In Millions of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1980	350.3	367.3	357.6	335.1	296.6	277.9	256.5	242.5	228.6	219.7	243.8	279.0
1981	328.2	361.3	347.8	341.5	339.4	328.6	297.5	272.6	245.2	234.9	244.6	232.2
1982	256.7	249.1	223.3	211.9	—	—	189.7	—	—	247.7	—	—
1983	294.4	303.1	307.0	299.1	277.3	265.2	254.0	252.3	267.4	268.2	278.0	316.0
1984	325.0	338.0	332.5	325.7	324.6	312.8	303.2	301.7	290.0	319.6	326.0	340.1
1985	357.7	375.1	347.0	334.0	328.0	300.9	292.5	319.7	310.6	308.4	294.9	302.3
1986	317.4	318.4	302.3	297.1	301.2	318.5	321.6	337.0	319.4	291.6	292.3	297.5
1987	310.6	320.6	306.0	311.1	312.3	280.1	252.7	278.7	269.3	286.5	307.6	304.3
1988 ²	288.6	316.4	325.4	313.2	305.0	275.1	248.4	269.6	294.9	307.6	296.5	300.4
1989 ²	317.5	315.1	313.4	298.3	273.2	244.1	241.8	249.2	242.4	231.7	224.0	236.9
1990 ²	246.2	—	—	—	—	—	—	—	—	—	—	—

¹ Includes frozen beef, cured beef, and beef in process of cure. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.408

Mercury

World mercury production averaged about 200,000 flasks a year during the first half of the 1980s and close to 180,000 flasks in the second half. Strikes and other problems at some producing sites curtailed output in the late 1980s. World demand has waned, owing to the publicized, negative environmental effects of mercury.

The USSR's annual average output is about 65,000 flasks (76 pounds each). Spain, which has the largest mine, is the second leading producer with about 44,000 flasks per year. Together, the centrally planned economies outside the USSR produce about 25,000 flasks per year.

The U.S. has one mercury mine, located in Nevada, but production data are not available. In the mid-1980s, the mine's output was somewhere between 15,000 and 20,000 flasks. Mexico produces about 10,000 flasks per year.

Mercury is also obtained from secondary production at gold and silver mines. In the U.S., six Western gold mining operations produced mercury as a by-product, while about five Eastern companies recovered secondary mercury from worn-out or obsolete items and waste products, such as dental amalgams, batteries, and instruments. Mercury can also be retrieved for recycling from operating chlorine and caustic soda plants.

The U.S. Department of Energy has a stockpile of 25,000 flasks at Oak Ridge, Tennessee, and has at least 165,000 flasks in other locations. Quantities are sometimes released to the market.

In 1988, domestic secondary production from industrial sources was placed at 7,000 flasks, while government-released mercury amounted to 6,500

flasks. U.S. mercury imports averaged more than 20,000 a year in the mid-1980s, but declined to about 10,000 by 1988 and reportedly totaled even less in 1989. Suppliers included Spain and China. The U.S. also exports some mercury.

The world's mercury resources are estimated at 17 million flasks, enough to last about 100 years. Italy is considered to have a reserve base of perhaps 2 million flasks. Spain has reserves estimated near 2.2 million flasks. U.S. reserves are about 100,000 flasks, and Mexico's are around 200,000.

At the start of the 1980s, batteries accounted for about half of U.S. mercury consumption of almost 59,000 flasks. Chlorine and caustic production accounted for about 15 percent. By the end of the decade, usage by the battery and chlorine industries was running about even, owing to the decline in mercury usage in batteries.

U.S. reported consumption in 1988 totaled 47,000 flasks, up from the previous two years. Over 50,000 flasks a year were consumed in the first half of the 1980s. U.S. consumption in first-half 1989 was running under a year earlier. Use in batteries fell. Based on the trends of the past decade, chlorine and caustic soda production will prove the primary demand outlet in the 1990s.

The average price of mercury in New York hovered near \$300 in the mid-1980s, rebounded to \$350 in 1988, but slipped in 1989. Prime virgin mercury in summer 1989 was around \$260 in New York for quantities of 50 flasks or more. European prices were lower. The pressure on prices in 1989 reflected large supplies in the U.S. and Europe.

World Mine Production of Mercury In Flasks of 34.5 Kilograms (76 lbs.)(1 tonne = 29.008216 flasks)

Year	Algeria	China ¹	Czechoslovakia	Dom. Rep.	Finland	Italy	Mexico	Spain	Turkey	United States	USSR ¹	W. Germany	Yugoslavia	World Total
1984	23,000	20,000	4,409	80	2,292	—	11,140	44,090	5,272	19,048	64,000	—	1,700	195,031
1985	23,000	20,000	4,583	121	3,630	—	11,430	45,042	6,552	16,530	65,000	—	1,800	197,688
1986 ¹	22,000	20,000	4,873	120	4,235	—	10,008	42,653	7,574	N.A.	66,000	—	1,800	179,263
1987 ²	22,000	20,000	4,700	100	4,000	—	10,000	43,000	6,000	N.A.	67,000	—	2,000	178,800
1988 ²	20,000						10,000	45,000	6,000		67,000			179,000

¹ Estimate. ² Preliminary. Source: Bureau of Mines

T.409

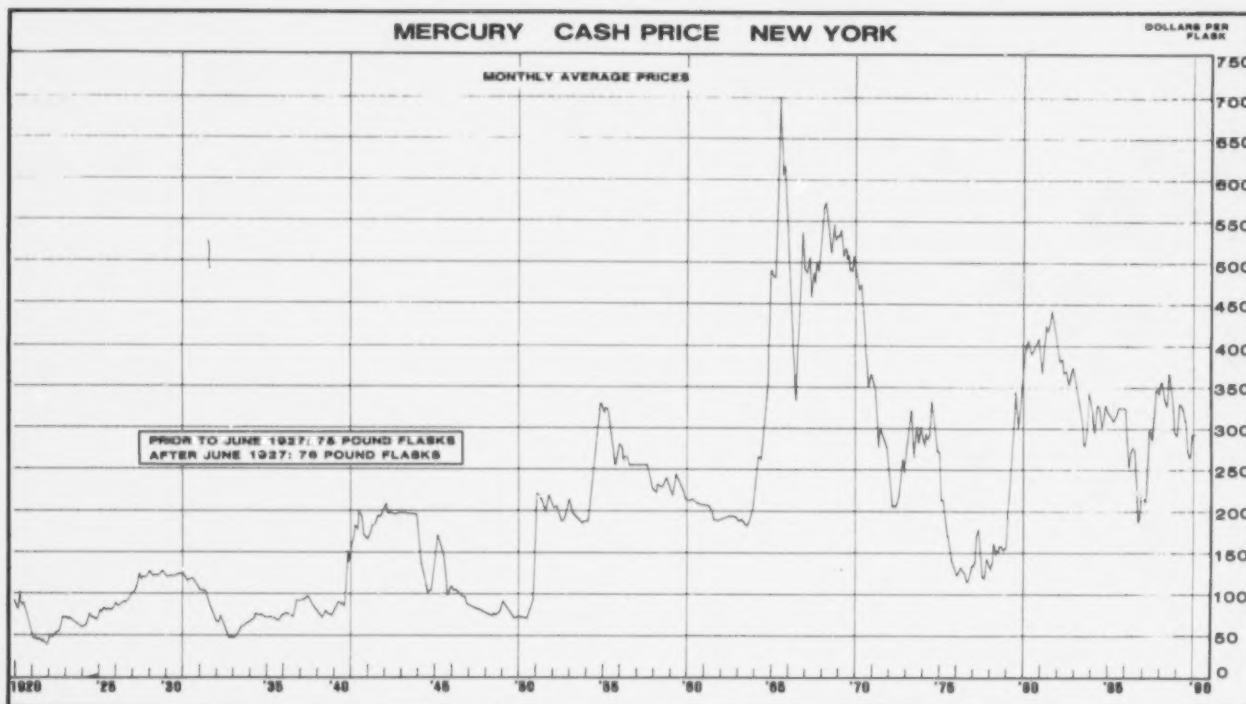
Salient Statistics of Mercury in the United States In Flasks (76 Pounds Each)

Year	Net Import Reliance as a % of Apparent Consump- tion	Ore Treated (1,000 Short Tons)	Mercury Produced ²		Stocks, Dec. 31					U.S. Imports (For Consumption) From:							
			Flasks	Pounds per Ton of Ore	Production		Pro- ducers	Consum- ers & Dealers	Total	Ex- ports	Total	Algeria	Canada	Tur- key	Mex- ico	Spain	Japan
					Mine	Second- ary											
1983	30	335.4	25,033	5.7	25,070	13,751	18,323	12,695	31,018	—	12,786	1,795	4	—	1,590	3,408	511
1984	58	216.2	19,014	6.7	19,048	5,673	19,964	7,291	27,255	—	25,327	8,201	14	2,002	21	11,749	500
1985	57	182.4	16,337	6.8	16,530	5,358	19,398	8,587	27,985	—	18,890	1,938	5	3,012	214	7,955	2,502
1986	50	N.A.	N.A.	N.A.	N.A.	6,362	N.A.	6,792	N.A.	—	20,187	1,251	10	4,328	655	5,824	2,202
1987 ¹	N.A.	N.A.	N.A.	N.A.	N.A.	7,692	N.A.	9,287	N.A.	—	18,451	—	155	—	10	5,002	1,000
1988 ³						7,967		10,875			10,000						
1989 ³						7,000		8,000			8,250						

¹ Preliminary. ² Excludes mercury produced from placer operation & from clean-up activity at furnaces & other plants. ³ Estimate. Source: Bureau of Mines

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MERCURY



Average Price of Mercury in New York In Dollars Per Flask of 76 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	383.75	399.90	420.00	406.81	398.33	389.57	397.11	397.26	402.62	407.83	404.56	376.19	396.72
1981	366.00	386.79	411.18	423.41	418.50	423.07	433.75	441.14	436.55	425.91	421.84	413.07	416.77
1982	405.00	380.92	390.76	384.32	365.88	367.50	364.29	343.30	352.55	373.21	373.75	374.29	372.98
1983	366.67	346.18	338.91	327.62	316.31	300.23	282.25	279.02	299.05	339.29	344.50	331.69	322.64
1984	318.67	295.68	300.45	324.26	328.27	325.48	314.64	302.09	317.18	329.07	327.13	320.08	316.92
1985	317.30	315.00	314.38	309.34	297.27	309.05	316.74	324.61	325.00	325.00	325.00	325.00	316.98
1986	285.68	261.97	252.44	272.05	277.50	276.07	260.00	218.10	181.91	193.80	215.19	219.43	242.85
1987	216.70	211.03	223.73	260.00	297.63	297.73	286.82	306.55	337.86	345.91	348.95	342.27	289.60
1988	354.00	357.00	350.00	337.14	326.90	352.28	367.13	360.43	349.29	322.74	299.34	293.45	339.14
1989	292.50	318.42	330.00	327.50	315.68	308.86	293.03	273.80	265.13	267.61	282.50	292.50	297.29
1990	292.50	292.50											

Source: American Metal Market

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Mercury Consumed in the United States In Flasks

Year	Bat- teries	Chlo- rine & Caustic Soda	Cata- lysts Misc.	Dental Equip.	Elec- trical Light- ing	Gen- eral Lab. Use	Meas- uring Control Instrum.	Other Instru- ments + Relat.	Paints	Wiring Devices & Switches	Other Uses	Grand Total
1980	27,829	9,470	765	1,779	1,036	363	3,049	190	8,621	3,062	790	58,983
1981	29,441	7,323	815	1,613	1,043	328	5,671	253	7,049	2,641	242	59,244
1982	24,880	6,243	499	1,019	826	281	3,064	194	6,794	2,004	984	48,943
1983	23,350	8,054	484	1,597	1,273	280	2,465	N.A.	6,047	2,316	1,356	49,138
1984	29,700	7,347	359	1,432	1,487	269	2,856	N.A.	4,651	2,730	1,404	54,669
1985	27,622	6,804	488	1,444	1,147	413	2,300	N.A.	4,892	2,762	267	49,846
1986	21,764	7,548	536	1,507	1,197	568	1,814	N.A.	5,006	2,981	309	45,946
1987	15,462	9,014	402	1,613	1,299	571	1,717	N.A.	5,755	3,811	420	41,939
1988 ¹	12,869	11,050		1,498	885	715	2,131		5,164	5,156	749	43,972
1989 ²												38,000

¹ Preliminary. ² Estimate. Source: Bureau of Mines

T.413

Milk

Over the first six months of 1989, growth in U.S. milk output was marginally below the same period in 1988. U.S. milk production in third-quarter 1989 fell by 6 percent from the previous quarter, but was only 1 percent lower than a year earlier. Total milk production in 1988 was 123.9 billion pounds, above 121.2 billion in 1987 and 122.4 billion in 1986. Milk production during July-September 1989 was just over 35.5 billion pounds.

The major factor affecting the milk market was the 1988 drought, which reduced grain supplies. Milk output declined because of the effect of the drought on supplies and prices of grain and forage. Particularly hard-hit were the Northern Plains. In the Northeast and Lakes states, producers had trouble obtaining forage. High prices for corn made feeding of concentrates less attractive. Cool weather also damaged the alfalfa crop, which worked against profitable operations.

The Dairy Termination Program of 1986 and 1987 reduced the number of milk cows, but yield per cow has been mostly higher. The program reduced the number of low-yielding cows from the nation's dairy herd. During the third quarter of 1989, the number of cows in the nation's dairy herd was 1 percent below the same quarter in 1988. The total U.S. dairy herd was 10.10 million head in third-quarter 1989, compared with 10.11 million in the second quarter and 10.22 million in third-quarter 1988.

In the 21 major states, the milk output per cow over the July-September quarter averaged 1,185 pounds per month, compared with 1,192 in the same quarter of 1988 and 1,168 in 1987.

The milk-feed ratio in second-quarter 1989 fell to the lowest level since third-quarter 1988, but by the third quarter of 1989 had risen again. The milk-feed ratio between spring of 1988 and spring of 1989 was the lowest it had been in many years. Alfalfa meal prices in late June of 1989 were about 2 percent above a year earlier.

Milk production in the 21 major states during third-quarter 1989 averaged 10.06 billion pounds per month, compared with 10.25 billion in the third quarter of 1988. The reduction in milk production was due to lower yields per cow and fewer cows. In September 1989, there were 8.48 million milk cows on farms, down almost 430,000 head from September 1986.

The outlook for 1990 was likely to improve, since grain prices and alfalfa meal prices were below 1989's level. In November of 1989, the price of alfalfa meal was about 7 percent less than a year earlier. With the 1989 corn crop 50 percent larger than 1988's, milk-feed ratios were expected to allow more profitable feeding. In third-quarter 1989, the milk-feed ratio rose by 9 percent from the second quarter. The trend in cow numbers has been toward a smaller herd, though the decline could be slowing. This trend could continue, as long as yields per animal increase to offset the smaller herd size.

Dairy producers were forecast to market 143.5 billion pounds in 1989, compared with 143.3 billion in 1988. The increase followed the rise in milk production. According to USDA, almost all of the milk was sold to plants and dealers, with a small amount sold directly to consumers. The average fat content of 1988 milk was 3.67 percent, up from 1987 and the highest since 1975.

World milk production was forecast at 434 million tonnes, almost 1 percent above 1988. Gains were expected in India, Mexico, the U.S., the Soviet Union, Australia and Canada. Lower production was forecast in the EC and New Zealand.

U.S. dairy product exports during May-July 1989 were 1.1 billion pounds on a milk-equivalent basis. That was three times more than the previous season. Large increases were posted for commercial sales of nonfat dry milk and Commodity Credit Corporation butter exports.

World Fluid Milk Production (Cow's Milk) In Millions of Metric Tons

Year	Australia	Brazil	Canada	Czecho-slovakia	Denmark	Finland	West Germany	USSR	India	Netherlands	New Zealand	France	Poland	Switzerland	United Kingdom	United States
1985	6.3	10.7	7.9	6.9	5.1	3.1	25.7	98.6	19.0	12.6	7.9	26.8	16.6	3.8	16.3	64.9
1986	6.2	11.6	7.9	7.0	5.1	3.1	26.4	102.2	19.5	12.7	8.2	28.1	15.7	3.8	16.2	65.0
1987	6.4	13.3	8.0	6.9	4.9	2.9	24.4	103.4	21.2	11.7	7.2	27.1	15.5	3.8	15.4	64.7
1988 ¹	6.3	13.2	8.2	6.9	4.7	2.7	24.0	106.4	22.0	11.4	7.9	26.0	15.5	3.8	14.9	66.0
1989 ²	6.5	13.2	8.3	7.0	4.7	2.6	24.3	106.8	23.0	11.2	7.5	25.5	16.0	3.8	14.7	65.9

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

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U.S. Milk-Feed Price Ratio¹ In Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1985	1.57	1.57	1.55	1.51	1.47	1.45	1.44	1.47	1.51	1.56	1.55	1.53	1.52
1986	1.48	1.50	1.48	1.48	1.46	1.45	1.51	1.55	1.61	1.75	1.77	1.77	1.57
1987	1.73	1.69	1.63	1.61	1.57	1.57	1.56	1.58	1.64	1.65	1.65	1.63	1.63
1988	1.51	1.47	1.43	1.40	1.37	1.36	1.15	1.19	1.28	1.32	1.36	1.37	1.35
1989 ²	1.37	1.34	1.30	1.28	1.27	1.28	1.37	1.43	1.52	1.59	1.65	1.77	1.43

¹ Pounds of 16% protein mixed dairyfeed equal in value to one pound of milk. ² Preliminary. Source: National Agricultural Service, U.S.D.A.

T.420

MILK

Milk Cows & Cattle and Milk Production in the U.S.

Year	Number of Milk Cows on Farms ² (Thousands)	Production Per Milk Cow ³		Total Milk Production ³			Milk Sold to Plants & Dealers		Milk Sold Directly to Consumers		Milk Utilized Bill. Lbs.	Farm Value of All Milk Produced Mill. \$	Exports Mill. Lbs.	Imports Mill. Lbs.	Per Capita Consump. Fluid Milk In Lbs.
		Milk Pounds	Milk Fat	Quantity Billion Pounds	% of Fat in All Milk Produced	Milk Fat Mil. Lbs.	Quantity Billion Pounds	\$ Per 100 Lbs.	Quantity Million Quarts	¢ Per Quart					
1982	11,011	12,306	450	135.5	3.65	4,950	131.9	13.61	597.8	48.1	133.1	18,559	5,095	2,477	235
1983	11,098	12,585	460	139.7	3.66	5,105	136.1	13.58	563.4	48.4	137.3	19,081	3,188	2,616	235
1984	10,833	12,506	458	135.5	3.66	4,964	131.4	13.46	530.8	49.2	132.5	18,341	3,600	2,741	237
1985	11,016	12,994	476	143.1	3.67	5,249	139.4	12.75	583.9	48.7	140.7	18,379	4,805	2,776	240
1986	10,813	13,260	486	143.4	3.67	5,284	139.8	12.51	547.1	48.3	141.0	18,058	1,970	2,732	240
1987 ¹	10,329	13,802	504	142.6	3.65	5,204	139.1	12.54	558.7	48.6	140.3	18,004	2,434	2,490	237
1988 ⁴	10,239	14,213		145.5									1,533	2,394	236
1989 ⁴	10,123	14,358		145.3											

¹ Preliminary. ² Average number on farms during year excluding heifers not yet fresh. ³ Excludes milk sucked by calves & milk produced by cows not on farms. ⁴ Estimate. Source: Crop Reporting Board, U.S.D.A. T.415

Utilization of Milk in the United States In Millions of Pounds (Milk Equivalent)

Year	Butter from Whey Cream	Creamery Butter ¹	Cheese ⁶	Cottage Cheese (Creamed)	Condensed Whole Milk	Evaporated Milk ⁵	Dry Whole Milk Products	Ice Cream & Other	Frozen Dairy Products ²	Fluid Consumption		Fed to Calves	Other Mfg. Products ⁴
										Nonfarm	Farm ³		
1981	3,192	24,614	36,546	977	639	1,669	686	14,080	11,964	50,215	886	1,418	821
1982	3,365	24,987	38,903	950	704	1,490	758	14,268	12,135	49,346	839	1,521	656
1983	3,554	25,788	41,006	941	648	1,525	823	14,720	12,598	49,705	842	1,527	663
1984	3,406	21,471	38,718	932	724	1,419	880	14,783	12,660	50,605	804	2,134	488
1985	3,694	24,385	41,700	917	817	1,509	877	15,021	12,855	52,014	709	1,747	477
1986	3,799	23,274	42,239	914	835	1,278	901	15,451	13,226	52,636	677	1,736	559
1987 ³	3,894	21,072	42,851	884	891	1,272	1,067	15,697	13,456	53,433	674	1,528	452

¹ Excludes whey butter. ² From milk and cream only. ³ Preliminary. ⁴ Includes dry cream, malted milk, dry part skim milk, dry ice cream mix. ⁵ Used for farm-churned butter. ⁶ American & other. Source: Crop Reporting Board, U.S.D.A. T.416

Milk Production on Farms in the United States In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	11,443	10,707	12,029	11,956	12,616	12,261	12,046	11,672	11,218	11,400	10,979	11,345	139,672
1984	11,373	10,856	11,713	11,660	12,219	11,710	11,487	11,205	10,784	10,913	10,524	11,006	135,450
1985	11,276	10,485	11,874	12,028	12,869	12,506	12,553	12,342	11,790	11,986	11,520	11,918	143,147
1986	12,211	11,276	12,565	12,517	13,127	12,509	12,272	11,899	11,288	11,360	10,963	11,393	143,381
1987	11,668	10,889	12,251	12,210	12,878	12,317	12,213	11,906	11,414	11,685	11,285	11,841	142,557
1988 ¹	12,037	11,567	12,593	12,461	13,000	12,410	12,312	12,041	11,672	11,893	11,500	12,041	145,527
1989 ¹	12,315	11,566	12,766	12,661	13,043	12,268	12,112	11,926	11,477	11,710	11,451	12,047	145,342

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A. T.417

Average Price Received by U.S. Farmers for All Milk² (Sold to Plants) In Dollars Per Cwt.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average ¹
1984	13.60	13.40	13.30	13.10	13.00	12.90	13.00	13.20	13.60	14.00	14.30	14.00	13.46
1985	13.90	13.70	13.30	12.90	12.50	12.20	12.10	12.10	12.30	12.60	12.60	12.60	12.75
1986	12.50	12.40	12.20	12.10	12.00	11.90	12.00	12.30	12.80	13.20	13.40	13.40	12.51
1987	13.20	12.90	12.50	12.20	11.90	11.90	12.00	12.20	12.60	12.90	12.90	12.70	12.54
1988 ³	12.50	12.20	11.90	11.60	11.40	11.30	11.40	11.80	12.40	13.00	13.40	13.50	12.24
1989 ³	13.40	13.10	12.70	12.30	12.20	12.30	12.60	13.20	14.00	14.70	15.50	15.90	13.49

¹ Weighted average. ² Adjusted for seasonal variation. ³ Preliminary. Source: Crop Reporting Board, U.S.D.A. T.418

Farm Price of Milk¹ Eligible for Fluid Market In Dollars Per Hundred Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	13.80	13.50	13.40	13.20	13.10	13.00	13.10	13.30	13.80	14.20	14.40	14.10	13.61
1985	14.10	13.90	13.50	13.00	12.70	12.30	12.30	12.30	12.40	12.70	12.70	12.70	12.90
1986	12.70	12.60	12.40	12.20	12.10	12.00	12.10	12.40	12.90	13.30	13.50	13.50	12.62
1987	13.30	13.00	12.70	12.40	12.10	12.00	12.20	12.40	12.80	13.00	13.00	12.80	12.66
1988	12.70	12.40	12.00	11.70	11.50	11.40	11.50	11.90	12.50	13.00	13.50	13.60	12.34
1989 ²	13.50	13.30	12.80	12.50	12.30	12.40	12.70	13.30	14.10	14.50	15.00	16.10	13.61

¹ MILK, Standard Grade, 3.5% milkfat. Weighted average price per 100 pounds (f.o.b. city). ² Preliminary. Source: Crop Reporting Board, U.S.D.A. T.419

Molasses

U.S. cane molasses production was expected to rise by about one percent in 1989, and beet molasses output was slated to increase by 4-5 percent.

Molasses is an essential ingredient in the production of rum. Most of the domestic demand for molasses is as an animal feed supplement. Cattle feeders use urea in liquid protein supplements and mix it with molasses, a carbohydrate source needed by the animal's ruminant system to convert urea to protein. Molasses also is used to improve the palatability of poor-quality roughages.

U.S. cane molasses production in 1988 amounted to 172.7 million gallons; about 80 percent of that was mainland cane, and the rest was Hawaiian cane. This was down from 1987's total outturn of

188.5 million gallons. Beet molasses output was about 200 million gallons in both 1988 and 1987. Refiners' blackstrap molasses amounts to over 20 million gallons a year.

U.S. molasses imports have trended lower since 1985, when they peaked at 313 million gallons. Imports in 1988 were 192.6 million gallons. The U.S. also exports some molasses, and shipments in 1988 were 56.2 million gallons.

In the first half of 1989, imports totaled 59 million gallons, down from 91 million in the comparable period in 1988, according to the Bureau of the Census. Cane molasses prices in New Orleans in late November 1989 were \$50/tonne, which was below \$67.50 a year earlier.

World Production of Molasses (Industrial) In Thousands of Metric Tons

Crop Year	Argentina	Brazil	Cuba ²	France	W. Germany	India	Italy	Mexico	Philippines	Poland	Australia	Thailand	China	United States	USSR	World Total
1978-9	818	5,000	1,296	952	685	2,564	365	1,410	818	657	577			2,148	3,306	32,688
1979-0	789	4,800	1,185	958	653	1,582	390	1,260	818	653	598			2,054	3,062	30,052
1980-1	654	5,400	1,111	1,013	657	2,129	410	1,145	860	430	713			2,012	2,669	30,941
1981-2	565	4,520	1,200	1,404	836	3,400	500	1,373	941	665	719	1,736		2,051	2,385	34,384
1982-3	541	5,110	1,050	1,364	807	3,700	370	1,270	957	758	726	1,316		1,900	2,530	35,139
1983-4	560	5,130	1,150	1,072	605	2,500	380	1,390	928	816	718	1,230	1,275	2,015	2,723	32,981
1984-5	702	4,800	1,150	1,165	640	2,500	380	1,400	744	708	736	1,356	1,130	2,012	3,200	33,755
1985-6	854	3,986	2,000	1,126	751	2,850	486	1,608	551	636	658	1,194	1,909	1,848	2,900	33,852
1986-7	950	2,587	1,750	998	715	3,660	530	1,552	490	638	693	1,206	1,875	2,027	2,950	33,429
1987-8 ¹	880	4,000	1,750	1,050	600	3,800	539	1,560	490	635	730	1,215	1,870	2,056	2,850	34,866
1988-9 ³	850	4,000	1,750	1,000	600	3,500	490	1,560	490	635	740	1,275	1,875	2,010	2,950	34,717

¹ Preliminary. ² Includes hi-test molasses. ³ Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.421

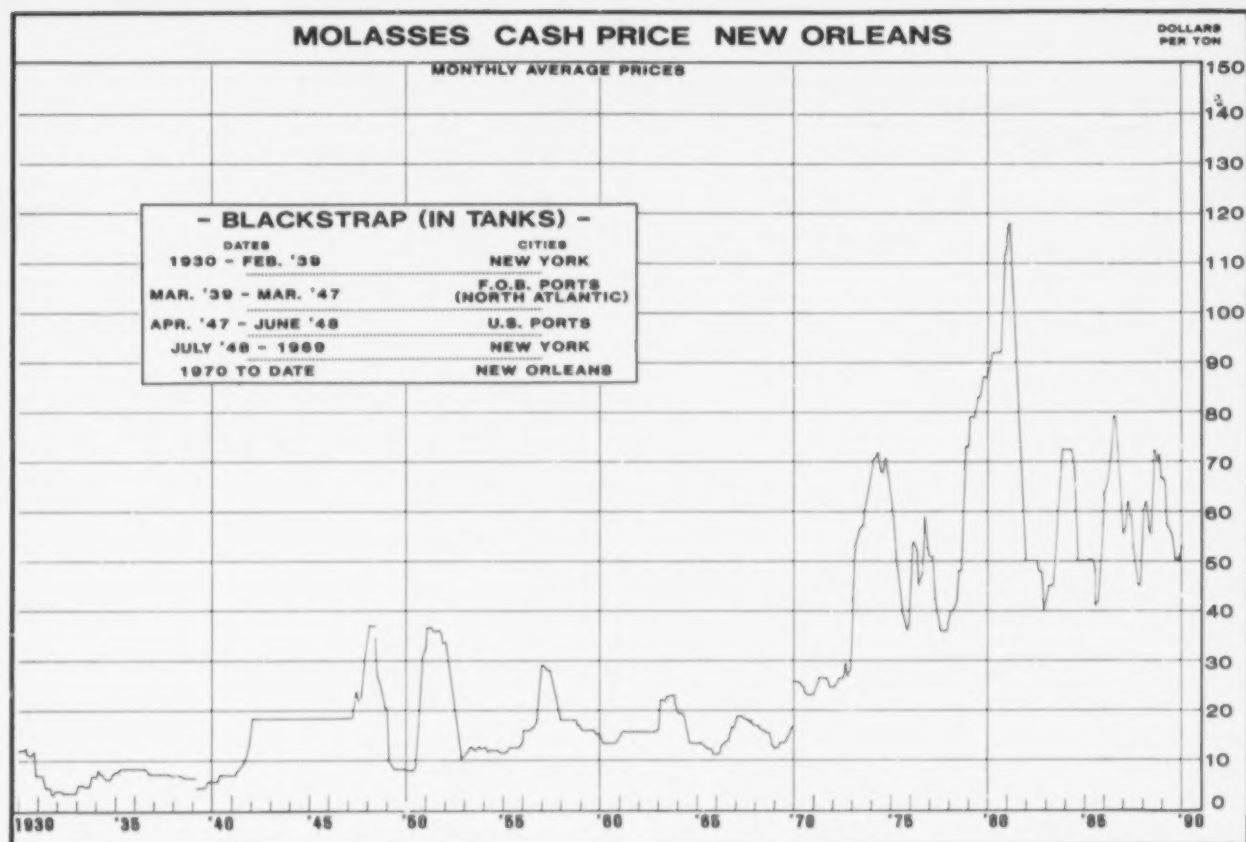
U.S. Annual Average Prices of Molasses, by Types (F.O.B. Tank Car or Truck) In Dollars Per Ton¹

Year	New Orleans	South Florida	Blackstrap Baltimore	Minneapolis	Omaha	Calif. Ports	Colorado	Beet Molasses Wyo. & Montana	No. Dak. & Minn.	Citrus Molasses Florida
1977	40.55	42.45	47.00	54.35	58.75	42.90	41.45	45.20	55.10	50.65
1978	51.50	52.40	59.25	67.30	72.55	54.00	60.40	58.35	60.95	61.05
1979	82.95	85.50	91.20	107.90	107.75	84.05	85.30	82.65	N.A.	79.40
1980	96.50	96.80	106.75	124.45	128.85	101.70	95.60	96.55	N.A.	103.65
1981	84.90	90.00	99.30	111.20	119.40	89.20	85.30	95.20	N.A.	103.10
1982	48.00	56.55	64.15	70.85	81.90	60.50	69.40	63.70	44.50	86.90
1983	56.50	63.10	73.05	76.90	91.90	70.40	79.45	65.95	60.55	89.20
1984	61.50	71.00	77.65	81.00	94.45	71.95	82.50	79.15	70.65	97.50
1985	50.28	59.79	64.66	72.83	85.00	61.89	N.A.	67.50	57.33	N.A.
1986	69.61	78.10	83.05	92.03	N.A.	73.26	80.33	86.75	68.44	N.A.
1987	53.23	61.96	72.83	80.05	N.A.	67.17	60.31	54.69	62.22	N.A.
1988 ²	64.89	74.54	82.93	90.07	N.A.	74.61	72.95	69.94	55.71	N.A.
1989 ³	61	70	80	86	N.A.	75	N.A.	N.A.	N.A.	N.A.

¹ Per ton prices are based on 171 gallons for blackstrap, beet and corn molasses and on 175 gallons for citrus molasses. Prices represent sales F.O.B. terminal to the general feed trade and do not include sales made under various pricing arrangements above or below prices generally available to the ultimate user. Ton—2,000 lbs. Gallon—U.S. gallon. Prices are now rounded off to the nearest 5 cents. ² Preliminary. ³ Estimated. Source: Molasses Market News, Annual Summary, AMS, U.S.D.A. Denver Colorado, and Molasses Market News, Weekly, various issues

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MOLASSES



Salient Statistics of Molasses in the United States In Thousands of Gallons

Year	Mainland cane	Domestic beet	Refiners blackstrap	Total ²	In shipments from Hawaii	Imports Edible & Inedible	Exports	Total U.S. supply
1982	126,956	170,781	38,189	350,337	49,109	206,291	47,247	544,079
1983	123,007	162,762	31,549	331,027	54,354	312,280	48,643	580,955
1984	118,993	170,426	34,598	330,284	50,029	260,724	26,371	608,399
1985	132,544	165,071	25,574	323,186	44,316	313,215	25,598	655,119
1986	137,285	192,565	23,922	353,772	51,395	249,760	72,545	582,382
1987	136,496	200,182	20,844	357,482	52,000	187,587	68,917	528,152
1988 ¹	139,152				33,516	192,619	56,190	

¹ Preliminary. ² Starting 1984 totals are adjusted to reflect omission of citrus and hydrol production. NA = not available.
Source: Molasses Market News, AMS, USDA.

Wholesale Price of Blackstrap Molasses (Cane) at New Orleans In Dollars Per Ton

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	50.00	50.00	50.00	50.00	50.00	50.00	50.00	48.00	48.00	44.00	40.00	41.00	47.60
1983	44.00	45.00	45.00	45.00	47.50	49.40	53.75	61.50	68.75	72.50	72.50	72.50	56.45
1984	72.50	72.50	72.50	72.50	70.70	68.75	59.00	50.00	50.00	50.00	50.00	50.10	61.55
1985	50.00	50.00	50.00	50.00	50.00	47.75	41.00	41.90	48.00	53.75	57.50	63.50	50.28
1986	65.00	65.60	68.50	71.00	73.75	79.00	79.13	76.60	72.30	68.10	60.25	55.50	69.56
1987	56.25	59.40	62.00	59.40	59.10	53.00	50.60	48.60	45.30	45.00	47.00	53.10	53.23
1988	60.30	62.00	60.60	56.90	55.50	62.50	72.50	72.50	70.00	71.50	67.50	66.90	64.89
1989	66.90	66.25	57.50	56.90	55.75	55.60	55.00	51.25	50.00	50.50	50.00	51.25	55.58

Source: Economics Service, U.S.D.A.

T.424

Molybdenum

The molybdenum industry found 1988 to its liking, as rises in capital goods orders boosted use of molybdenum-containing steels.

In the first six months of 1989, U.S. production of molybdenum concentrates totaled 63.35 million pounds, compared with full-year 1988 totals of 94.91 million. While the six-month figure implied a sharp increase over 1988's total production, industry analysts expected that a late-year slowdown would affect full-year totals.

U.S. output of molybdenum products for the first six months of 1989 was 27.79 million pounds, while full-year 1988 totals were 56.54 million pounds, indicating steady 1989 business. The largest consumer of molybdenum was the steel industry. Total steel industry use for the first six months of 1989 was 18.27 million pounds, according to the U.S. Bureau of Mines.

The steadiness in demand was seen as a positive sign by the industry, and in response, MolyCorp Inc., a Los Angeles based company, announced that it would reopen its Questa, New Mexico molybdenum mine, idled since 1986. Initial production was expected to be 12 million pounds of ore, about

50 percent of total capacity.

The U.S. is a net exporter of molybdenum, shipping ore and concentrate to over twenty countries. The Netherlands in the first ten months of 1989 was the destination for 41.4 million pounds. Shipments to the U.K. totaled 21.9 million pounds in the period.

While the U.S. is basically self-sufficient in molybdenum concentrate production, there is a small import trade in specialty items, notably ferromolybdenum steel and chemical compounds. In 1988, total imports of molybdenum products were 13.1 million pounds, gross weight, with a dollar value of \$37.2 million. For the first ten months of 1989, gross weight imports of molybdenum products totaled 7.3 million pounds, valued at \$24.4 million.

World mine production of molybdenum was about 189,000 tonnes, with the U.S., Chile, and Canada the leading producers.

Identified molybdenum resources are estimated at 19 billion pounds in the U.S. and 46 billion pounds in the rest of the world. Resources are considered more than adequate to meet global demand.

World Mine Production of Molybdenum In 1,000 Pounds (Contained Molybdenum)

Year	Bulgaria	Canada ²	Chile	China	Japan	Mexico	Mongolia	Niger	Peru	Philippines	South Korea	United States	USSR	World Total
1979	330	24,634	29,895	4,400	154	105			2,637	311	417	143,967	22,500	229,350
1980	330	26,892	30,133	4,400	123	163	1,070	269	5,926	201	661	150,696	22,900	243,754
1981	330	28,329	33,863	4,400	163	994	1,460	249	5,485	207	1,023	139,900	23,600	240,003
1982	375	30,779	44,198	4,400	214	11,442	1,830	93	6,427	150	796	84,381	24,300	209,385
1983	420	22,474	33,651	4,400	214	12,932	2,120	88	5,825	86	313	33,593	24,500	140,616
1984	420	25,479	37,172	4,400	324	8,938	2,200	73	6,557	—	348	103,664	24,700	214,275
1985	420	17,311	40,541	4,400	215	8,292	2,200	44	8,898	—	734	108,409	24,900	216,364
1986	400	24,804	36,555	4,400	—	7,385	2,425	44	7,681	—	696	93,976	25,100	203,466
1987 ¹	400	25,530	36,800	4,400	—	8,000	2,425	33	7,700	—	700	75,117	25,300	86,405
1988 ²		27,311	37,500			9,500			5,300			94,911		208,880
1989 ²		31,000	47,000			6,000			7,000			140,000		266,000

¹ Preliminary. ² Estimate. ³ Shipments. Source: Bureau of Mines

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U.S. Salient Statistics of Molybdenum In 1,000 Pounds (Contained Molybdenum)

Year	Production	Concentrate						Primary Products ³							
		Shipments			Consumption	Imports for Consumption	Stocks Dec. 31 ²	Net Production			Shipments			Producers' Stocks Dec. 31	
		Total (Includes Exports)	Value \$	For Exports				Molybdenic Oxide ⁴	Molybdenum Metal Powder	Sodium Molybdate	To Domestic Destinations	Oxide For Exports	Consumption		
1979	143,967	143,504	871.1	36,405	103,152	2,329	9,520	101,752	79,035	4,946	1,541	109,419	35,773	60,388	8,502
1980	150,686	149,311	1,344	35,026	108,206	1,825	18,101	106,284	84,554	4,904	1,142	95,391	35,557	53,265	27,007
1981	139,900	118,916	945.5	32,735	80,725	1,988	35,043	105,824	59,645	3,513	96	64,368	20,004	50,189	44,961
1982	84,381	76,135	504.1	21,870	49,444	3,115	38,510	65,381	35,354	3,304	121	47,884	23,375	27,665	49,402
1983	33,593	48,805	166.6	18,979	27,014	1,673	11,637	37,533	11,148	3,667	191	50,562	19,877	27,225	28,352
1984	103,664	102,405	326.8	41,687	54,843	28	12,450	79,689	40,186	4,302	N.A.	65,527	24,553	34,792	22,155
1985	108,409	111,936	347.8	38,646	N.A.	112	9,322	87,436	48,750	3,734	N.A.	73,861	36,268	33,451	21,014
1986	93,976	95,006	240.5	18,267	53,061	1,120	8,715	41,490	6,147	4,256	N.A.	57,855	21,325	31,898	20,699
1987 ¹	75,117	69,868	179.3	18,587	37,442	1,264	15,082	34,659	N.A.	4,181	N.A.	40,668	12,273	32,629	22,168
1988 ⁵	94,911	100,000		26,294			10,061	56,540				45,273		38,408	
1989 ⁵	140,000	135,000		45,000			10,000	60,000				40,000		40,000	

¹ Preliminary. ² At mines & at plants making molybdenum products. ³ Comprises ferromolybdenum, molybdenic oxide, & molybdenum salts & metal. ⁴ Includes molybdenic oxide briquets, molybdenic acid, & molybdenum trioxide. ⁵ Estimate. Source: Bureau of Mines

T.426

Nickel

Nickel prices rose to an all-time high in 1989 and then broke sharply, as price strength brought on increased supplies.

After the market's years in the doldrums, the accumulated impact of low stocks and mine closures resulted in 1988's sharp price rally, which continued into early 1989. The rally was fueled by strong demand for nickel in stainless steel. Nickel prices rose to a record \$19,000 a ton in March of 1989. The price on the London Metal Exchange rallied up to \$8.60 a pound, and the N.Y. dealer cathode price topped out at \$8.90. By contrast, in January of 1987, LME nickel prices were stagnant at \$1.57 a pound.

However, after the early 1989 peak, nickel prices began to fall sharply, and by the end of 1989 the price on the LME was down \$4.00 a pound from the March highs and looked ready to fall further. Higher prices encouraged production, and stocks that were being withheld from the market found a level where it was profitable to sell.

Market analysts reported that the Soviet Union shipped large quantities to the LME and to Western industries during the period of the price rise, and they noted a general slackening of industrial demand in late 1989.

U.S. primary nickel consumption (exclusive of scrap) in the first six months of 1989 totaled 109.82 million pounds, compared with 114.79 million

in the same 1988 period. Total 1988 nickel consumption was estimated at 264.9 million pounds of apparent primary offtake. In 1988, apparent secondary offtake (scrap nickel) amounted to 126.6 million pounds.

The U.S. imports nickel from about fifteen countries, with Canada the largest source. In 1988, Canada supplied 90,242 tons of nickel out of total U.S. imports of 154,366 tons. The next major source was Norway, supplying an estimated 21,910 tons.

Total global mine production of nickel in 1988 was estimated at 876,500 tons. The leading producers were Canada with mine output of 210,000 tons, followed by the USSR with 205,000 tons. The U.S. does not mine any nickel and is entirely dependent on scrap recycling and imports to fulfill its nickel requirements.

Identified world resources of one percent or better nickel content are estimated at 143 million tons, with substantially more in low-grade deposits. Extensive deposits of nickel in manganese nodules cover large areas of the sea bed, particularly in the Pacific Ocean.

Futures Market

Nickel futures are traded on the London Metal Exchange (LME).

World Mine Production of Nickel In Thousands of Short Tons of Contained Nickel

Year	Australia ³	Bots- wana	Brazil	Canada	Cuba	Domin. Repub.	Finland ³	Greece	Indo- nesia	New Caledonia	Philip- pines	South Africa	United States	USSR	Zim- babwe	World Trade
1982	96.5	19.6	15.9	97.6	39.8	5.9	7.0	5.5	50.6	66.3	21.6	24.3	3.2	182.0	17.4	685.0
1983	84.5	20.1	17.2	141.2	41.5	21.5	5.9	18.5	54.4	50.9	15.3	22.6	—	187.0	13.3	742.1
1984	84.8	20.5	25.9	192.0	35.1	26.4	7.6	18.4	52.5	64.3	15.0	27.6	14.5	192.0	13.4	846.9
1985	94.5	21.6	22.4	187.4	35.7	28.5	9.4	20.6	44.5	79.8	31.0	27.6	6.1	198.0	12.3	882.3
1986	84.6	20.6	14.8	180.4	36.0	24.2	13.1	1.6	58.1	68.1	14.1	35.1	1.2	205.0	11.4	835.7
1987 ¹	82.1	18.2	14.7	207.0	37.5	24.5	11.6	13.2	64.0	61.8	8.6	37.8	—	205.0	11.4	867.1
1988 ²	68.7	29.2	24.2	219.3	48.5	32.3	11.0	14.3	58.4	74.6	11.9	38.4	—	209.0	13.2	920.0
1989 ²	69.0	29.0	24.0	220.0	50.0	33.0	11.0	14.0	59.0	75.0	12.0	39.0	—	210.0	13.0	925.0

¹ Preliminary. ² Estimate. ³ Content of nickel sulfate and concentrates. Source: Bureau of Mines

T.427

Salient Statistics of Nickel in the United States In Short Tons

Year	Net Import Reliance as a % of Apparent Consumption	Production		Nickel Consumed ¹ , By Uses										Stocks, Dec. 31—		Nickel & Pdt's —		Avg. N.Y. Cathode Price Free Mkt. \$ Lb.
		Plant ⁴	Secondary ³	Alloy Steels	Cast Irons	Cop- per Base Alloys	Electro- plating Anodes	Nickel Alloys	Stain- less & Heat Resisting Steels	Super Alloys	Chem- icals	Total	At Con- sumers' Plants	At Pro- ducer Plants	Imports — (Gross Weight) —	Exports		
1982	76	44,956	42,968	10.0	1.9	4.3	20.9	17.9	32.2	11.0	2.0	103,981	18,853	62,000	129,787	57,029	2.24	
1983	75	33,400	49,852	9.8	1.1	6.3	22.6	24.9	47.0	11.5	2.0	127,845	20,448	38,500	152,333	43,913	2.20	
1984	69	44,933	55,167	11.9	1.5	6.7	24.8	29.4	45.8	12.9	2.2	136,861	20,934	37,300	176,715	58,525	2.22	
1985	71	36,382	53,645	9.6	3.1	14.9	24.9	25.3	68.0	13.6	2.1	119,907	19,106	17,400	157,690	51,429	2.26	
1986	73	N.A.	43,726	8.2	2.6	10.6	21.0	19.9	60.2	12.7	1.9	107,062	16,557	10,300	129,094	23,269	1.86	
1987 ²	75		46,657	9.0	1.8	11.2	22.7	19.2	79.1	18.3	1.9	130,504	10,393	6,824	148,273	27,919	2.19	
1988 ³	68											125,520	11,999	7,672	154,366		6.09	
1989 ⁵	65											115,000	11,000	7,000			6.30	

¹ Exclusive of scrap. ² Preliminary. ³ From purchased scrap (ferrous & nonferrous). ⁴ Smelter & refinery. ⁵ Estimate. Source: Bureau of Mines

T.428

Oats

U.S. oats production in 1989/90 was 371 million bushels, up a whopping 69 percent from the previous season. Oats production had declined for many years, but appeared to be rebounding with improved consumer demand for oat products. Oats are grown primarily in the north-central states of Minnesota, Iowa, and the Dakotas. Though that area was gripped by a severe drought in 1988, 1989's crop weather was much better. The national average yield rose to 54 bushels per acre from 39 bushels in 1988.

Acreage planted to oats has declined, as the number of farm animals has fallen. Mechanization reduced the need for horses and mules and for oats as feed. Because of lower oats production and stocks, imports have risen. In response, the USDA reduced the acreage set-aside requirement for oats to 5 percent, while other competing feed grains were left at 10 percent. Much of the oats acreage lost in past seasons had been replanted to barley and corn.

U.S. harvested oats area in 1989/90 was estimated at 6.8 million acres, up from 5.4 million. Farmers appeared to be responding to changes in the government program.

There was concern about the amount of high-quality oats available, since much of the crop had been used to feed farm animals. Strong consumer demand for oat-based foods raised the need for high-quality oats.

Domestic carry-in stocks of oats in 1989/90 were

estimated at 98 million bushels, down 12 percent from the previous season. Imports were projected to total 55 million bushels, down from 68 million. The total supply of oats in 1989/90 was forecast to be 524 million bushels, or 31 percent more than the season before.

With 1989/90's larger supplies and lower prices, use of oats was expected to increase. Total use was projected to rise by 37 percent to 412 million bushels. Feed use of oats was put at 300 million bushels, up from 200 million the previous season. Oats face competition in the feeding sector from corn and barley. Consumption of oats for food, seed, and industrial purposes was forecast at 110 million bushels, up 10 percent. Oats are used in a variety of foods, primarily breakfast cereals.

While use of oats increased, that was offset by larger supplies. Ending stocks of oats in 1989/90 were projected to rise by 14 percent to 112 million bushels.

For the 1990 crop, the loan rate was set at \$0.85 per bushel, unchanged from the previous season. The target price was put at \$1.45 per bushel. The acreage reduction requirement was 5 percent, the same as the previous season.

Futures Markets

Oats futures are traded on the Chicago Board of Trade, the Minneapolis Grain Exchange, and the Winnipeg Commodity Exchange.

World Production of Oats In Thousands of Metric Tons

Crop Year	Argentina	Australia	Canada	China	Denmark	France	Netherlands	Poland	Spain	Sweden	Turkey	United States	USSR	Un. King.	West Germany	World Total
1975-6	433	1,141	4,466		367	1,948	158	2,920	609	1,345	390	9,551	12,495	795	3,445	47,044
1976-7	530	1,073	4,831		256	1,402	103	2,695	505	1,251	400	7,930	18,113	764	2,497	48,744
1977-8	570	991	4,303	1,515	288	1,928	94	2,561	421	1,416	370	10,901	18,407	790	2,714	51,508
1978-9	676	1,763	3,621	1,500	206	2,203	140	2,492	553	1,550	370	8,730	18,507	706	4,049	51,753
1979-0	522	1,411	2,978	1,600	163	1,845	109	2,186	456	1,524	370	7,643	15,200	542	3,697	45,165
1980-1	433	1,128	3,028	1,800	160	1,927	94	2,245	680	1,567	355	6,652	15,544	601	3,249	44,543
1981-2	339	1,617	3,188	1,700	176	1,774	115	2,731	445	1,816	325	7,391	15,000	620	3,200	45,343
1982-3	637	848	3,637	1,660	178	1,802	136	2,608	443	1,663	330	8,602	15,500	575	3,777	47,866
1983-4	593	2,296	2,773	1,650	86	1,374	61	2,377	464	1,268	310	6,923	17,000	465	2,489	45,115
1984-5	610	1,367	2,670	780	150	1,892	58	2,604	780	1,904	300	6,875	19,200	516	2,973	48,391
1985-6	400	1,339	2,997	664	152	1,803	58	2,682	719	1,668	314	7,559	20,500	615	3,278	50,062
1986-7	400	1,600	3,300	700	111	1,000	40	2,500	422	1,500	300	5,582	21,900	505	2,700	47,500
1987-8 ¹	700	1,700	3,000	600	93	1,000	47	2,400	502	1,400	300	5,429	18,500	440	2,400	43,700
1988-9 ²	400	2,000	3,000	700	130	1,000	27	2,200	580	1,400		3,177	16,500	685	2,500	39,200
1989-90 ²	600	1,700	3,500	700		1,000		2,300				5,381				

¹ Preliminary. ² Estimated. Source: Foreign Agricultural Service, U.S.D.A.

T.434

United States Official Oat Crop Production Reports In Thousands of Bushels

Year	July 1	Aug. 1	Sept. 1	Oct. 1	Dec.	Final	Year	July 1	Aug. 1	Sept. 1	Oct. 1	Dec.	Final
1982	580,288	591,478	599,008	—	616,981	620,509	1986	—	443,183	413,025	—	383,553	384,356
1983	519,002	504,201	472,541	—	477,303	476,961	1987	—	392,843	—	—	—	374,000
1984	454,747	455,190	472,460	—	471,921	473,661	1988	—	206,330	206,330	210,766	—	218,853
1985	498,953	519,028	537,443	—	518,626	520,800	1989	387,593	380,690	380,690	370,693	—	

Source: Crop Reporting Board, U.S.D.A.

T.431

OATS

Oats Stocks in the United States as of June 1 In Thousands of Bushels

Year	On Farms	Off Farms	Total All Positions	Year	On Farms	Off Farms	Total All Positions
1987	103,300	29,446	132,746	1989 ¹	59,930	38,404	98,334
1988	76,900	35,129	112,029	1990			

¹ Preliminary. Source: Agricultural Statistics Board, U.S.D.A.

Production of Oats in the United States, by States In Millions of Bushels

Year	Illinois	Indiana	Iowa	Michigan	Minnesota	Missouri	Nebraska	New York	North Dakota	Ohio	Oregon	Pennsylvania	South Dakota	Texas	Wisconsin	California
1979	15.6	6.4	63.0	18.9	84.9	2.0	21.2	18.0	37.0	20.3	4.0	18.4	94.4	16.8	55.9	4.1
1980	14.0	5.9	62.0	20.1	82.7	2.0	15.6	17.9	13.5	19.4	4.1	19.0	66.0	12.6	58.7	4.3
1981	13.5	5.5	59.5	21.1	90.1	4.6	15.8	17.9	44.2	17.0	4.6	20.0	70.5	18.9	52.6	3.6
1982	11.8	6.7	54.2	28.4	97.9	3.3	26.7	18.2	55.7	23.5	6.4	19.8	123.5	10.7	49.3	3.4
1983	12.6	4.6	38.3	15.6	77.0	2.5	13.6	11.4	63.6	15.4	6.0	16.2	79.2	24.0	45.1	2.9
1984	11.4	5.0	47.4	21.7	78.0	1.6	15.7	10.6	50.0	13.9	6.6	16.0	86.8	8.8	53.3	3.5
1985	12.5	7.6	57.8	26.1	77.0	5.8	25.6	17.7	44.5	26.4	9.2	21.0	79.5	15.0	51.5	3.0
1986	14.4	6.4	39.1	17.0	43.4	5.0	21.2	12.9	38.5	12.2	7.6	16.1	46.2	8.4	52.7	3.2
1987	13.1	6.4	35.8	17.1	45.6	3.4	17.6	12.0	36.4	17.5	5.2	14.8	52.9	9.9	43.2	2.8
1988	9.2	3.0	26.4	6.0	24.8	1.4	12.2	7.5	7.2	9.0	6.5	13.0	20.0	9.0	19.7	2.5
1989 ¹	17.0	6.8	50.4	20.1	46.8	3.6	8.6	9.1	20.2	15.8	6.9	13.8	44.0	6.6	46.9	3.2

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.437

Oats Supply and Utilization in the United States

Year June-May	Acreage		Yield	Production	Imports	Total supply	Feed & residual	Food & industrial	Seed	Exports	Total use	Ending stocks	Farm price	Nat. avg. supp. rate	Target price
	Planted	Harvested	Bu/acre												
	— Mil. acres —		— Bu/acre —		— Mil. bu —										
														\$/bu.	
1980/1	13.4	8.7	53.0	459	1.3	697	432	41.0	33.0	13.3	520	177	1.79	1.16	
1981/2	13.6	9.4	54.2	510	1.6	688	453	41.2	35.4	6.6	536	152	1.89	1.24	
1982/3	14.0	10.3	57.8	592.6	3.9	748.4	440.6	41.7	43.3	3.0	528.6	219.8	1.49	1.31	
1983/4	20.3	9.1	52.6	477.0	30.1	726.9	470.9	40.9	31.9	2.1	545.8	181.1	1.62	1.36	
1984/5	12.4	8.2	58.0	473.7	34.0	688.8	432.0	41.0	34.6	1.3	508.9	179.9	1.67	1.31	1.60
1985/6	13.3	8.2	63.7	520.8	27.5	728.2	459.9	44.0	38.4	2.2	544.5	183.7	1.23	1.31	1.60
1986/7	14.7	6.9	56.3	386.4	33.3	603.4	392.3	45.0	30.6	2.8	470.7	132.7	1.21	.99	1.60
1987/8	18.0	6.9	54.0	374.0	46.3	553.0	360.5	45.0	34.0	1.5	441.0	112.0	1.56	.94	1.60
1988/9 ¹	13.9	5.6	39.2	218.9	68.4	399.3	199.6	70.4	29.6	1.3	300.9	98.3	2.61	.90	1.55
1989/90 ²	12.1	6.8	54.3	370.7	55.0	524.0	300.0	—	111.0	—	412.0	112.0	1.50	.85	1.50

¹ Preliminary. ² Estimate. Source: Economic Research Service, U.S.D.A.

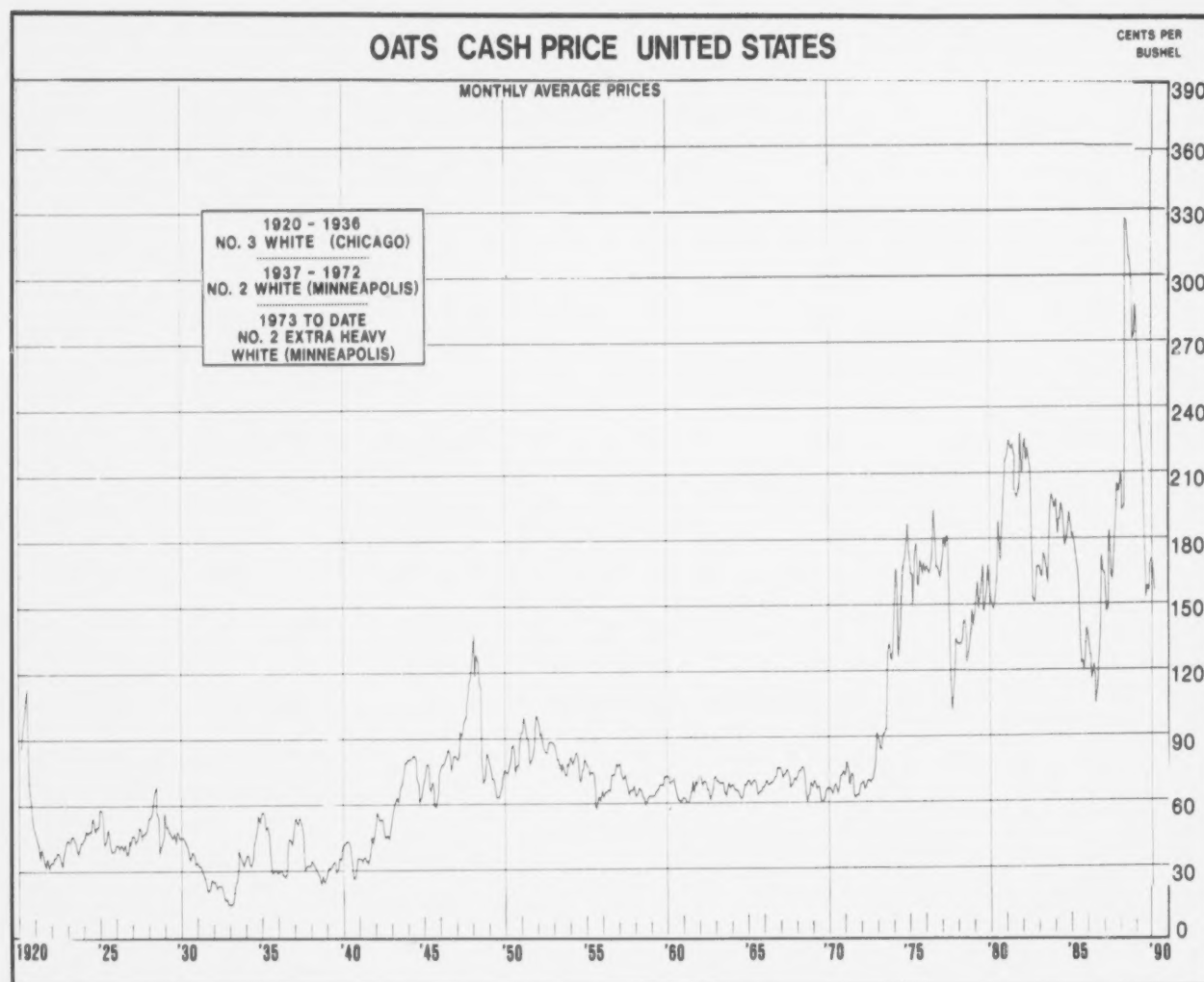
T.430

Volume of Trading in Oats Futures at Chicago Board of Trade In Millions of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1978-9	103.8	121.3	120.0	149.0	141.0	67.7	59.3	93.9	51.6	95.4	87.1	135.7	1,225.3
1979-0	127.8	111.6	76.1	98.6	96.0	47.1	56.9	85.3	53.8	81.1	131.5	144.8	1,110.6
1980-1	200.4	183.9	199.6	197.1	167.9	151.0	124.8	170.2	129.2	136.4	120.5	162.2	1,943.2
1981-2	125.3	134.6	117.0	144.5	264.9	221.0	166.7	184.7	204.3	223.6	196.5	247.9	2,231.0
1982-3	221.0	218.9	151.2	113.2	127.6	82.5	121.1	154.0	141.3	213.6	159.1	159.7	1,863.2
1983-4	160.1	254.5	180.4	95.1	102.4	57.9	58.9	91.9	77.1	89.8	59.8	76.6	535.0
1984-5	64.7	88.7	38.5	41.0	48.8	39.5	46.1	38.1	33.7	33.7	30.9	31.2	534.9
1985-6	42.6	55.6	37.2	57.0	53.9	35.2	54.7	41.7	41.9	62.0	59.2	62.3	603.3
1986-7	42.0	45.6	47.0	47.2	93.6	107.6	94.0	138.3	120.6	106.2	121.3	117.0	1,080.4
1987-8	103.7	153.6	109.4	135.4	139.4	116.6	92.1	121.2	146.6	162.1	162.6	267.1	1,709.8
1988-9	160.3	121.1	107.6	108.1	183.0	141.1	168.5	136.6	150.7	188.7	138.7	195.2	1,799.6
1989-90	148.7	174.9	104.2	86.7	191.9	136.3							

Source: Chicago Board of Trade

T.440



Average Cash Price¹ of No. 2 Heavy White Oats at Minneapolis In Cents Per Bushel

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average ¹	No. 2 Heavy - White, Port- land	Tole- do
1977-8	138	115	102	111	117	134	132	132	132	133	140	143	127	144	136
1978-9	136	124	128	136	139	147	140	147	154	160	148	155	143	179	137
1979-0	168	160	147	155	165	167	159	152	150	148	152	162	157	187	160
1980-1	188	180	170	186	196	215	216	220	225	223	221	223	204	242	217
1981-2	218	202	199	202	209	228	210	223	226	216	221	216	214	236	223
1982-3	212	187	153	151	151	167	167	167	163	163	173	171	169	218	155
1983-4	167	160	179	194	200	197	194	198	182	188	189	196	187	195	201
1984-5	192	184	177	179	184	192	187	181	182	179	173	165	181	212	192
1985-6	159	144	123	124	119	132	139	137	130	127	116	122	131	160	108
1986-7	118	105	112	129	139	172	166	164	156	146	159	183	146	153	120
1987-8	164	161	177	185	197	205	202	210	206	193	194	212	192	176	168
1988-9 ²	326	325	309	307	299	271	274	287	259	249	230	222	280		226
1989-90 ²	203	172	153	158	156	168	170								

¹ Weighted average of reported daily cash sales. ² Preliminary. Source: Economic Research Service, U.S.D.A.

T.435

OATS

Month-End Open Interest of Oats at the Chicago Board of Trade & Winnipeg Commodity Exchange

Year	Chicago (In Millions of Bushels)												Winnipeg (In Contracts)			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mar.	June	Sept.	Dec.
1979	31.1	32.8	24.4	29.8	25.4	28.8	27.0	32.2	29.2	28.6	26.2	25.8	2,515	2,778	3,085	2,635
1980	23.8	23.2	17.5	23.2	21.2	25.8	35.3	41.3	41.6	39.5	37.6	27.6	2,827	2,315	3,178	3,598
1981	36.2	36.7	27.0	25.2	27.8	29.7	25.3	23.9	29.0	45.6	42.4	34.6	3,295	2,625	2,203	1,863
1982	36.5	39.6	40.5	40.5	43.4	45.8	43.4	32.6	30.5	31.4	23.7	21.5	1,298	1,185	1,155	1,225
1983	30.8	35.8	43.3	45.1	48.8	42.5	49.8	48.2	41.8	36.7	26.0	22.1	1,202	1,313	3,170	1,978
1984	21.8	24.3	23.7	21.5	21.0	21.5	24.2	23.1	23.3	22.4	20.8	18.7	1,529	3,127	3,551	1,073
1985	19.4	19.0	16.5	16.2	14.5	14.9	16.7	16.6	15.8	21.3	19.3	19.3	1,028	1,248	1,581	1,028
1986	18.5	18.7	20.8	19.3	16.5	14.9	15.3	16.8	13.7	18.9	25.2	30.3	421	513	607	1,700
1987	35.4	35.7	31.9	29.2	26.2	24.5	30.4	36.3	33.2	30.4	28.1	30.6	1,533	1,417	1,427	1,784
1988	40.0	39.7	41.1	44.6	42.8	46.2	36.4	33.8	34.5	39.1	43.4	48.8	2,145	2,709	2,576	1,724
1989	50.2	47.8	48.3	50.0	46.2	47.3	49.3	43.6	58.5	55.7	54.8	55.8	4,192	7,636	5,878	2,974

Source: Chicago Board of Trade & Winnipeg Commodity Exchange

T.438



High, Low & Closing Prices of May Oats Futures at the Chicago Board of Trade In Cents per Bushel

Year of Delivery	Year Prior to Delivery								Delivery Year					Life of Delivery Range
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1983 High	196	185	182½	177½	175	172¼	184½	179¾	181¼	175½	169	172½	163½	196
Low	188½	173½	164	158½	163½	161	165½	172	172¼	149	151	151¼	154	149
Close	189	176½	167¾	171	170¼	164	177½	174½	174½	149¼	160¼	155¾	157¼	—
1984 High	185	183½	200	226	220	206	199½	192¼	188	181½	185½	189¼	193	226
Low	179½	177	181	189½	199¼	193	184½	180½	178	163	169	169¾	171½	163
Close	179½	181½	197½	200	206	193	184½	188¾	180	168¾	185½	171	193	—
1985 High	—	191	185¾	181½	175	179¾	180¾	179¾	177½	174½	173¼	170	164	191
Low	—	181	175	171	171	173	176	172½	169¼	167½	167¼	160¼	156¾	156¾
Close	—	190	178½	172¼	173½	179	179	176¾	172¼	170¼	167¾	160½	160½	—
1986 High	163	161	150½	135	135¾	138¾	141¾	143½	142	129	122½	109	119	163
Low	160	149¾	133½	127½	128	130½	134¾	133½	121½	118	106¾	94¼	101½	94¼
Close	161	150¾	133¾	130	135	138½	135¼	142¼	124¼	120	108¼	109	108½	—
1987 High	116½	119	117½	123	128¾	135¼	150¾	155¾	157	162	147½	166¾	190½	190½
Low	116¼	112½	110	115	120½	126	134¼	136	151¾	144	130½	141½	167¼	110
Close	116¼	115½	113¼	122¾	128	133¾	146	155¾	154½	149½	140½	166¾	183¼	—
1988 High	159	174	170½	188½	188	190	194½	191½	187	184¼	182	169¾	170	194½
Low	150¾	147	155½	162¾	176	167½	162	173	175	176¼	158½	157	155	147
Close	150¾	160	170	179	180	169¾	189	175½	185	181	161½	159¼	166	—
1989 High	197½	340	325	286½	281	259	241	243	249½	229½	215½	202¾	197	340
Low	186¾	194	247	249	247	238	205½	206	213	206	186½	174	179	174
Close	197½	310	267	261¾	247¼	242	211¼	242¼	225½	211¾	187¼	178	180½	—
1990 High	200½	201	199¾	172	164¾	164	166	166						
Low	190	179	157	158½	153½	155½	158½	158						
Close	194½	182	157	164	159¼	159¼	164½	161						

Source: Chicago Board of Trade

T.439

Average Price Received by U.S. Farmers for Oats In Cents Per Bushel

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average ¹
1979-0	135	133	124	129	131	141	131	139	137	134	138	143	136
1980-1	148	150	153	163	165	184	192	198	201	208	205	205	179
1981-2	199	184	172	174	178	188	194	197	199	202	199	199	189
1982-3	188	157	139	135	132	140	144	146	148	149	154	154	149
1983-4	151	146	145	155	162	167	173	181	188	181	182	184	162
1984-5	180	168	162	160	169	164	172	174	169	168	168	160	167
1985-6	159	131	116	110	108	117	120	118	116	114	113	121	123
1986-7	110	90	86	99	110	132	144	146	147	145	150	157	121
1987-8	152	129	140	149	161	162	176	179	184	178	182	184	156
1988-9	263	286	254	257	256	241	247	252	246	241	224	214	261
1989-90	182	153	146	138	140								

¹ Weighted average by sales. Source: Crop Reporting Board, U.S.D.A.

T.433

Oats Under Price Support Through the End of the Month
(Cumulative Total from Current Season's Crop) In Millions of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1979-0	—	2.2	5.0	7.1	8.7	9.5	10.5	11.0	11.6	12.1	12.2	12.2	12.2
1980-1	—	1.8	3.4	4.4	4.9	5.7	6.0	6.1	6.2	6.3	6.3	6.3	6.3
1981-2	.6	3.4	6.1	7.4	8.0	8.7	9.3	9.5	9.6	9.6	9.6	9.6	9.6
1982-3	.1	1.2	4.0	5.8	6.9	7.7	8.3	8.5	8.8	9.0	9.1	9.1	9.1
1983-4	.1	1.0	1.4	2.8	3.1	3.2	3.4	3.5	3.5	3.6	3.6	3.6	3.6
1984-5	—	.9	2.1	2.6	2.8	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1
1985-6	.1	1.0	2.3	3.6	4.0	4.3	4.6	4.8	4.9	5.2	5.3	5.3	5.3
1986-7	.2	1.8	4.1	5.9	6.7	7.2	7.4	7.6	7.7	7.7	7.7	7.7	7.8
1987-8	—	.1	1.4	2.1	2.5	2.6	2.6	2.8	2.9	2.9	2.9	2.9	2.9
1988-9	—	.4	.6	.7	.8	.9	.9	1.0	1.0	1.0	1.0	1.0	1.0
1989-90	—	.6	1.1										

Source: U.S. Department of Agriculture

T.432

Olive Oil

World olive oil production in 1989/90 was projected by the USDA to rise 22 percent to 1.75 million tonnes. Olive oil comprises only 3 percent of world vegetable oil and marine oil output. Production of olive oil is cyclical, and large crops are followed by years of smaller crops. The 1986/87 crop was small and was followed by a sizable crop in 1987/88. In turn, the 1988/89 crop was meager. Major olive oil producers include Spain, Italy, Greece, Turkey and Tunisia. The harvest begins in the Northern Mediterranean in mid-November and proceeds south through the end of March.

With the larger world crop, the USDA projected world exports in 1989/90 at 490,000 tonnes, up 9 percent from a year earlier. The European Community (EC) heavily subsidizes production to provide income support for farmers in poorer areas of the Community. Subsidies are also provided on con-

sumer prices and exports.

Italy is a large importer of olive oil, buying from Spain and Greece. The U.S. is a major market for olive oil, with imports having reached record levels.

Global olive oil consumption in 1989/90 was forecast by USDA at 1.8 million tonnes, up about 40,000 tonnes from a year earlier. However, olive oil use has shown little growth in recent years. In contrast, consumption of competitive oils, like soy, palm, and sunseed, has risen. The EC is by far the largest consumer of olive oil, with Italy the major user, followed by Spain and Greece. The EC accounts for about three-fourths of the world's olive oil consumption.

Global ending stocks in 1989/90 were projected at 550,000 tonnes, down slightly from 600,000 the previous season. Olive oil stocks comprised about 9 percent of world vegetable and marine oil stocks.

World Production of Olive Oil (Pressed Oil)² In Thousands of Metric Tons

Crop Year ²	Algeria	Greece	Italy	Jordan	Lebanon	Argentina	Morocco	Portugal	Spain	Syria	Tunisia	Turkey	Libya	Israel	World Total
1980-1	18	321	606	10	2	11	23	32	479	83	145	170	8	2	1,921
1981-2	15	229	515	5	12	14	34	23	300	44	70	60	8	4	1,350
1982-3	16	324	430	7	8	16	23	79	666	97	55	170	7	3	1,908
1983-4	13	230	824	10	15	13	28	9	258	31	150	40	8	4	1,644
1984-5	15	236	343	6	7	9	27	43	658	60	95	80	12	4	1,613
1985-6	18	345	607	8	5	9	40	33	397	48	105	70	9	2	1,711
1986-7	15	230	355	14	6	7	35	41	491	73	120	120	7	3	1,532
1987-8 ¹	17	287	688	3	5	9	38	35	734	32	95	55	7	3	2,028
1988-9 ³	19	308	430	10	7	8	30	26	376	90	54	95	4	4	1,483
1989-90 ³	12	300	590	7	5	7	45	35	436	22	110	55	5	3	1,652

¹ Preliminary. ² Total pressed oil in marketing year beginning Nov. 1; excludes sulfur oil extracted from residues. ³ Forecast.

Source: Foreign Agricultural Service, U.S.D.A.; Oil World.

T.441

Average Unit Value of U.S. Olive Oil Imports In Thousand Dollars Per Metric Ton

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	1,336	1,313	1,301	1,307	1,424	1,357	1,379	1,342	1,438	1,361	1,397	1,284	1,353
1985	1,256	1,169	1,215	1,235	1,256	1,249	1,251	1,257	1,308	1,333	1,292	1,338	1,263
1986	1,402	1,400	1,402	1,469	1,492	1,495	1,587	1,554	1,751	1,572	1,732	1,589	1,537
1987	1,690	1,763	1,652	1,726	1,635	1,577	1,588	1,608	1,563	1,646	1,609	1,696	1,646
1988	1,682	1,694	1,736	1,699	1,701	1,669	1,465	1,562	1,691	1,582	1,493	1,606	1,632
1989	1,641	1,642	1,890	1,930	2,005	1,981	1,919	1,919	1,861	1,917	1,910		

Source: U.S. Bureau of the Census

World Olive Oil Supply and Distribution In Thousands of Metric Tons

Crop Year	Production	Exports	Imports	Consumption	Ending Stocks
1980-1	1,921	267	260	1,663	864
1981-2	1,337	204	296	1,593	700
1982-3	1,908	360	401	1,627	1,022
1983-4	1,644	296	338	1,810	908
1984-5	1,600	484	503	1,729	799
1985-6	1,626	367	500	1,718	839
1986-7	1,557	545	572	1,768	655
1987-8	1,900	458	474	1,772	799
1988-9 ¹	1,409	491	512	1,762	467
1989-90 ²	1,750	490	490	1,800	550

¹ Preliminary. ² Forecast. Source: Foreign Agricultural Service, U.S.D.A.

Onions

Salient Statistics of Onions in the United States

Crop Year	Jan. 1 Stocks Frozen	Annual Pack Frozen	Imports Canned	Acres Harvested	Yield Per Acre	Production	Price Per Cwt.	Farm Value	Domestic Exports (Fresh)	Imports (Fresh)	Per Capita ² Utilization	
	Million Pounds			Acres	Cwt.	1,000 Cwt.	Dollars	\$1,000	Million Pounds		(Lbs.)	Frozen
1979	24.4	167.2	9.0	123,910	312	38,602	6.98	237,432	156.7	157.4	14.7	.74
1980	26.7	156.1	7.9	113,160	296	33,526	11.40	347,054	256.6	132.8	13.7	.68
1981	28.0	159.9	8.3	112,030	314	35,155	14.70	475,470	420.1	136.1	13.1	.7
1982	28.4	182.3	8.7	125,920	332	41,861	8.24	307,501	140.7	165.7	15.2	.8
1983	31.9	139.6	9.5	123,040	315	38,762	12.40	431,906	183.2	204.9	15.3	.6
1984	28.8	156.5	12.1	129,350	338	43,657	10.60	422,538	273.9	267.2	16.1	.7
1985	23.4	142.0	14.0	122,760	367	45,059	9.08	347,247	121.6	263.7	16.5	
1986	27.4	185.5	12.3	115,340	375	43,301	10.90	427,669	164.4	247.6	17.9	
1987 ¹	35.7	188.0	13.0	123,720	364	45,867	12.50	511,090	195.8	371.2	16.7	
1988 ¹	29.6	157.2	14.1	132,150	365	48,264	9.72	426,293	245.1	407.0	18.3	
1989 ¹	33.4			133,340	358	47,794	10.70	456,267				

¹ Preliminary. ² Includes fresh and processing. Source: Economic Research Service, U.S.D.A.

T.443

Production of Onions in the United States In Thousands of Hundredweight (Cwt.)

Year	Spring				Summer									Grand Total
	Texas	California	Arizona	Total (All)	New Mexico	Texas	California	Colorado	Idaho	Michigan	Minnesota	New York	Oregon	Total (All)
1981	2,700	2,160	512	5,372	1,242	1,488	7,025	2,925	2,625	2,446	199	3,933	4,460	29,649
1982	3,492	2,805	876	7,173	1,643	1,544	10,395	3,255	2,475	2,336	168	4,550	4,821	41,637
1983	3,800	2,166	656	6,622	1,248	1,643	9,179	3,432	2,475	2,573	158	2,793	5,292	38,762
1984	3,348	2,734	805	6,887	1,365	1,560	9,819	4,636	2,323	2,933	156	3,384	6,785	43,657
1985	3,230	3,510	564	7,304	1,463	943	9,250	5,355	3,740	2,535	194	3,960	6,785	45,059
1986	3,600	2,886	660	7,146	1,810	1,537	9,953	4,590	3,710	1,653	208	3,456	5,945	43,301
1987	2,750	3,198	585	6,533	2,106	799	10,730	4,688	4,620	1,900	195	3,132	7,032	45,867
1988 ¹	3,220	3,315	450	6,985	2,752	861	12,160	5,535	4,028	2,000	126	2,808	6,649	48,264
1989 ¹	3,225	3,080	440	7,380	2,640	1,040	11,400	5,520	3,885	2,212	150	2,912	6,563	47,794

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.444

Cold Storage Stocks of Fresh Onions in the United States In Thousands of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1981	7,777	6,972	4,422	3,730	1,247	591	1,828	649	143	719	665	3,219
1982	3,474	3,963	3,319	1,813	—	—	275	—	—	952	—	—
1983	4,183	4,407	4,116	2,988	1,042	235	325	724	385	785	1,348	8,826
1984	8,648	7,006	2,527	343	1,230	556	527	1,212	5,270	5,618	5,354	6,949
1985	7,465	5,518	4,454	2,248	810	4,806	2,804	1,280	6,205	6,526	5,890	6,128
1986	5,171	5,325	2,572	1,573	545	1,769	1,627	1,001	346	2,116	4,693	7,784
1987	6,773	5,330	2,710	1,883	1,560	2,403	1,181	137	1,276	2,500	3,823	6,641
1988	4,406	1,982	192	35	575	2,551	1,587	268	3,508	7,453	10,499	9,018
1989 ¹	7,608	4,914	2,348	70	462	670	184	140	2,133	13,283	16,492	16,000
1990 ¹	11,858	12,787										

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.445

FOB Price Received by Growers for Onions in the U.S. In Dollars Per Hundred Pounds (Cwt.)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average ²
1981	15.40	17.20	23.60	26.10	22.40	18.10	17.70	15.40	11.50	12.80	14.80	14.60	14.70
1982	17.60	17.40	13.20	12.70	12.60	9.43	11.90	12.60	7.83	7.12	6.90	6.35	8.24
1983	5.13	6.35	7.59	10.70	10.60	9.62	10.70	10.90	10.80	11.00	12.90	18.30	12.40
1984	17.30	19.40	25.20	25.30	13.90	11.00	14.00	13.60	11.00	9.52	10.30	11.90	10.60
1985	10.20	8.91	7.95	9.12	13.00	10.90	19.20	11.20	7.61	6.40	6.97	8.19	9.08
1986	7.70	7.01	7.07	9.37	9.31	10.70	11.20	9.79	10.90	12.00	10.60	11.80	10.90
1987	16.20	17.60	19.90	26.30	22.40	16.70	14.90	10.60	9.73	8.80	9.37	10.50	12.50
1988	15.70	15.70	15.00	16.80	8.90	8.52	10.20	8.85	12.40	12.00	12.20	12.10	9.72
1989 ¹	11.70	11.00	9.68	10.90	9.47	12.80	16.70	16.10	11.10	10.60	10.20	12.40	10.70
1990 ¹	11.30												

¹ Preliminary. ² Seasonal Average. Source: Crop Reporting Board, U.S.D.A.

T.448

Orange Juice

In 1989, Christmas was not a pleasant time for orange growers in the Southeast U.S., as a crop-killing freeze hit the citrus belt. Coming on the heels of a February 1989 freeze which hurt crop prospects for the approaching season, the December 23-24 freeze sharply reduced estimates for the 1989/90 Florida orange crop. It set back many Florida growers, whose groves were making a comeback from freezes in the first half of the 1980s, and devastated the Texas citrus crop. Juice shipments from Brazil's record orange crop were expected to make up for most of the Florida supply shortfall, but not without higher prices.

The post-freeze estimate for the 1989/90 Florida orange crop was 103 million boxes, while the yield was 1.24 gallons per box, down from pre-freeze forecasts of 130 million and 1.48 gallons, respectively. By comparison, the 1988/89 Florida crop was 146.6 million boxes, with a yield of 1.53 gallons per box. The total 1989/90 U.S. crop estimate was reduced to 157 million boxes, compared with 207 million the previous season.

The share of U.S. oranges used for processing into juice was 78 percent in 1988/89, while an estimated 94 percent of Florida oranges went into juice production. It was expected that the propor-

tion of Florida oranges processed would be even higher in the 1989/90 season, since growers salvaged damaged fruit for processing.

Brazil's share of the U.S. orange juice market was expected to increase significantly, due to the 1989 freeze. Orange production in Sao Paulo, Brazil in the 1989 season was estimated at a record 290 million boxes. The Brazilian crop was helped by better weather conditions than in the previous season. Almost 90 percent of production was expected to be utilized for processing. Brazilian exports for the 1989/90 (July-June) season were estimated at 925,000 tonnes, with the U.S. and Canadian markets taking over half of that amount.

U.S. retail orange juice prices were expected to be sharply higher in the first half of 1990.

Futures Market

FCOJ futures and options are traded on the Citrus Associates of the New York Cotton Exchange (NYCE). A second futures contract, FCOJ No. 2, was expected to be approved by the Commodity Futures Trading Commission (CFTC). The contract would have lower quality standards and various delivery points.



ORANGES AND ORANGE JUICE

World Production of Oranges In Thousands of Metric Tons

Season	Argentina	Australia	Brazil	Cuba	Egypt	Greece	Israel	Italy	Cyprus	Mexico	Morocco	South Africa	Spain	Turkey	United States	World Total ³
1981-2	606	421	9,942	360	895	704	1,105	1,752		1,650	695	546	1,629	675	7,025	28,666
1982-3	639	392	9,210	400	1,201	665	889	1,498		1,380	670	510	1,652	656	8,827	29,294
1983-4	500	488	9,588	385	1,243	691	962	2,299		1,300	747	512	2,077	730	6,691	28,927
1984-5	653	489	1,715	390	1,182	775	941	1,960		1,000	686	486	1,365	760	6,109	29,355
1985-6	623	523	11,015	447	1,168	554	685	2,257	157	1,410	841	497	1,942	505	6,913	29,905
1986-7	621	475	10,650	500	1,235	881	815	2,424	204	1,683	650	577	2,059	750	7,122	31,033
1987-8 ¹	650	450	10,400	560	1,387	462	627	1,343	138	1,942	891	682	2,442	700	7,903	30,915
1988-9 ²	600	504	13,385	575	1,199	770	546	1,968	153	2,268	994	632	2,216	700	8,054	35,044
1989-90 ²				590	1,399	831	630	1,655	165	2,650	844		2,634	600	7,506	

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.449

U.S. Salient Statistics of Oranges & Orange Juice

Season	Production ²			Farm Price \$ Per Box	Farm Value Million \$	Frozen Concentrated Orange Juice—Florida				Florida Crop Processed				Yield Per Box (Gall.)	U.S. Imports of Frozen Concentrated Orange Juice		
	California	Florida	Total U.S.			Carry- in	Pack	Total Sup- ply	Total Season Movem.	Frozen Concen- trates	Chilled Prod- ucts	Total Pro- cessed	Brazil		Others	Total	
																	Million Boxes
1979-0	59.4	206.7	273.6	4.76	1,304.2	37.4	256.4	293.8	239.0	174.9	24.7	206.6	1.34	97.7	2.3	100.0	
1980-1	65.3	172.4	244.6	4.85	1,327.7	57.3	249.6	306.9	240.6	145.3	19.9	171.5	1.21	203.1	11.1	214.2	
1981-2	41.9	125.8	176.7	5.30	1,295.3	69.0	214.9	283.9	230.5	105.2	16.5	126.1	1.28	374.0	22.1	396.1	
1982-3	76.1	139.6	225.2	6.61	1,167.3	53.4	228.4	281.8	239.0	114.6	18.3	135.5	1.48	337.2	27.6	364.8	
1983-4	48.5	116.7	169.5	5.85	1,317.1	42.8	239.9	282.7	228.3	94.5	17.0	114.4	1.29	510.1	23.5	533.6	
1984-5	52.4	103.9	158.8	7.69	1,303.9	54.4	209.6	264.0	215.7	86.1	14.9	102.9	1.38	578.2	18.5	596.3	
1985-6	53.9	119.2	175.7	9.19	1,455.4	48.3	215.1	263.5	226.5	96.1	17.3	114.7	1.38	500.5	45.7	546.1	
1986-7 ¹	57.9	119.7	181.2	6.18	1,090.4	37.0	227.9	264.9	225.1	96.2	19.7	116.8	1.51	500.2	50.6	550.8	
1987-8 ³	59.0	138.0	200.3	7.18	1,322.5	39.8	240.9	280.7	238.6	110.2	23.3	134.4	1.55	351.0	56.7	407.7	
1988-9 ³	57.0	146.6	207.2	68.3	1,773.7	42.1				113.7	29.9	144.8	1.53				
1989-90 ³	61.0	130.0	194.4		1,776.4								1.48				

¹ Preliminary. ² Fruit ripened on trees, but destroyed prior to picking is not included. ³ Estimate. ⁴ Single strength. Source: Economic Research Service, U.S.D.A. Florida Citrus Processors Assoc.

T.450

U.S. Cold Storage Stocks of Orange Juice Concentrate² In Millions of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1981	722.4	907.1	1,053.2	1,180.1	1,264.4	1,502.2	1,491.3	1,307.8	1,178.8	1,022.2	892.2	759.1
1982	753.1	957.0	1,172.3	1,300.7	—	—	1,406.2	—	—	846.5	—	—
1983	835.9	1,028.1	1,016.2	963.3	1,187.0	1,408.0	1,318.6	1,192.4	960.8	810.7	684.8	595.0
1984	631.1	785.7	956.3	976.3	920.1	998.2	903.2	780.4	707.0	595.8	557.3	564.8
1985	651.6	883.4	1,050.6	1,102.7	1,188.6	1,229.5	1,063.7	1,036.1	912.4	882.2	778.8	656.0
1986	679.2	888.4	966.8	911.5	1,031.6	1,047.5	1,056.9	920.3	855.3	715.4	577.8	524.8
1987	621.2	874.8	1,012.7	933.8	999.0	1,109.1	1,105.1	942.1	792.6	840.0	652.8	569.0
1988	662.4	903.8	1,072.9	1,004.1	1,019.0	1,122.1	1,171.8	998.5	827.0	693.3	638.7	589.5
1989 ¹	721.6	980.9	1,151.1	1,086.8	1,204.2	1,296.1	1,296.9	1,139.9	946.9	808.4	725.7	651.6

¹ Preliminary. ² Adjusted to 42° BRIX basis (9.896 lbs./gal.) Source: Crop Reporting Board, U.S.D.A.

T.451

Month-End Open Interest of Frozen Concentrated Orange Juice Futures In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	7,612	6,501	6,126	6,390	6,210	5,923	6,186	6,920	8,046	9,063	9,239	9,582
1981	7,980	10,787	12,018	11,354	11,667	11,925	10,675	9,751	9,454	7,991	7,654	8,037
1982	9,519	8,634	6,580	6,238	6,227	5,808	6,007	6,395	5,666	5,775	7,106	9,359
1983	9,720	7,136	6,229	6,267	6,225	6,264	5,969	6,413	6,487	6,155	5,732	7,186
1984	8,873	10,650	11,676	11,733	11,295	12,965	11,646	10,350	10,039	9,356	9,339	8,542
1985	7,854	6,680	6,452	6,373	5,885	5,504	4,895	4,300	4,756	5,701	7,156	12,951
1986	8,763	7,782	7,827	6,469	7,013	7,295	6,908	6,682	7,470	8,774	9,460	11,290
1987	9,916	11,336	9,318	9,265	8,249	7,650	6,557	6,496	7,925	8,097	9,798	10,562
1988	12,529	16,641	15,863	13,403	11,396	10,780	11,139	10,554	8,942	8,172	9,253	7,905
1989	6,738	7,056	7,420	7,938	9,095	9,246	7,523	7,383	6,956	6,904	7,673	9,696

Source: Citrus Assoc. of the N.Y. Cotton Exchange

T.456

ORANGES AND ORANGE JUICES

High, Low & Closing Prices of May Orange Juice¹ Futures at New York In Cents per Pound

Year of Delivery	Year Prior to Delivery												Delivery Year					Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May			
1985 High	170.00	176.00	181.50	179.50	168.50	172.00	185.00	181.75	172.90	170.00	183.50	178.00	170.35	161.40	159.90	185.00		
	Low	155.00	166.50	174.50	167.00	164.90	167.00	167.50	166.50	166.80	162.40	159.20	166.60	160.30	154.70	151.00	114.90	
	Close	165.60	176.00	178.65	168.00	166.90	169.70	181.20	166.90	169.90	163.90	178.60	168.10	161.60	158.20	151.20	—	
1986 High	166.25	160.50	152.45	140.90	133.45	127.00	128.90	128.10	116.60	131.50	113.25	92.95	95.70	96.40	101.00	178.40		
	Low	160.35	152.50	136.70	133.10	124.00	122.95	122.65	111.95	113.00	107.25	88.30	83.50	82.60	89.00	93.10	82.60	
	Close	161.30	152.50	140.00	133.15	124.65	122.95	128.50	114.45	114.55	108.15	89.00	84.30	95.60	92.75	96.55	—	
1987 High	91.40	94.75	101.85	109.95	110.00	108.70	109.50	120.20	123.70	134.80	128.80	127.85	138.50	136.25	143.00	143.00		
	Low	84.50	90.50	92.95	100.40	101.10	105.80	106.80	108.00	119.50	123.95	118.60	120.85	127.00	128.10	132.25	84.45	
	Close	91.40	92.75	100.80	108.25	107.70	106.20	108.25	119.70	123.65	125.10	121.20	126.80	128.90	132.25	130.80	—	
1988 High	130.05	126.50	126.95	123.90	124.25	128.10	132.00	145.25	171.00	174.00	176.70	173.65	167.50	172.00	174.10	176.70		
	Low	123.40	123.40	124.15	119.25	120.15	122.90	128.50	132.20	146.00	164.50	165.00	156.25	156.50	167.70	167.15	119.25	
	Close	123.40	125.00	124.20	120.50	122.85	128.10	132.00	145.25	167.50	165.70	166.85	159.00	167.25	170.15	167.15	—	
1989 High	152.45	155.50	155.25	168.50	172.00	173.50	170.50	172.50	173.00	166.60	156.25	143.90	168.00	179.90	193.10	193.10		
	Low	144.85	148.50	151.05	151.70	167.00	167.00	162.20	166.25	163.50	156.60	132.00	132.35	139.05	162.75	176.10	132.00	
	Close	148.95	154.80	151.40	168.45	171.65	169.25	167.25	172.00	164.50	157.90	138.40	140.20	166.70	178.45	182.70	—	
1990 High	149.80	163.50	170.60	161.50	153.10	143.15	141.55	133.10	127.80	159.00								
	Low	149.05	148.55	161.25	146.30	138.00	137.00	131.00	124.40	122.50	125.50							
	Close	149.80	163.50	161.30	152.10	141.80	141.50	131.00	126.00	126.90	159.00							

¹ Frozen concentrated orange juice. Source: Citrus Associates of the N.Y. Cotton Exchange, Inc.

T.455

Volume of Trading of Frozen Concentrated Orange Juice Futures In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	28,968	25,524	27,139	17,038	12,206	21,501	14,577	14,242	8,424	9,606	8,647	19,188	207,070
1983	28,122	20,345	11,754	6,704	7,614	7,823	4,881	4,531	5,621	9,690	6,409	10,773	124,267
1984	33,189	36,206	34,643	32,774	26,882	30,273	23,803	15,246	36,508	23,693	11,737	12,410	317,364
1985	28,768	20,572	8,135	11,529	9,514	10,011	8,238	7,893	9,395	16,320	11,115	49,268	190,758
1986	39,756	24,971	21,413	13,209	13,909	14,979	10,469	9,887	10,940	17,513	9,551	24,946	211,543
1987	28,566	24,342	27,999	19,569	10,651	15,470	8,805	10,710	12,330	20,321	20,724	26,758	266,641
1988	40,976	42,153	37,295	28,937	22,931	36,877	23,752	27,118	26,228	26,922	19,399	25,451	358,039
1989	26,156	26,419	28,501	26,855	30,272	32,051	23,403	19,698	17,119	18,069	15,893	39,668	304,104

Source: Citrus Assoc. of the N.Y. Cotton Exchange

T.452

Wholesale Index Price of Frozen Orange Concentrate¹ 1982 = 100²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	312.9	337.7	334.5	326.5	315.4	308.4	308.7	307.1	307.8	307.7	307.5	303.2	315.5
1983	304.0	300.8	299.6	299.1	302.3	300.7	301.1	300.8	302.4	302.5	303.8	303.9	301.8
1984	316.4	361.6	373.3	380.3	385.2	395.0	387.7	392.4	403.7	410.2	408.3	407.8	385.2
1985 ²	127.3	133.1	133.2	132.9	133.5	132.4	130.5	126.0	123.9	119.3	114.9	112.8	126.7
1986	104.4	102.2	97.6	94.4	94.1	94.3	94.2	94.2	93.7	96.0	98.6	101.4	97.1
1987	106.9	106.9	107.4	109.5	109.7	110.0	110.1	111.0	110.6	110.6	117.2	129.9	111.7
1988	132.1	140.1	142.4	140.5	142.0	141.1	141.6	142.0	141.7	140.7	140.8	139.1	140.3
1989	137.3	127.7	126.5	125.4	131.7	139.2	140.7	139.7	137.3	133.9			

¹ Packer to wholesale distributor, or retail chain store, f.o.b. plant. ² Data prior to 1985 are for 1967 = 100. Source: Bureau of Labor Statistics (0242-0301)

T.454

Average Price of Oranges (Equiv. On-Tree) Received by Growers In Dollars Per Box

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	13.50	13.80	13.50	14.20	17.20	17.50	18.70	20.30	28.30	28.40	16.50	12.80	17.89
1983	10.80	10.40	10.50	10.30	9.85	10.60	11.70	11.30	10.20	9.30	12.90	13.00	10.90
1984	13.10	12.00	11.60	12.60	19.20	22.40	22.50	23.30	24.40	24.40	19.30	18.50	18.61
1985	18.70	17.50	16.20	17.00	17.40	16.50	15.90	15.40	15.00	13.70	15.60	16.20	16.26
1986 ¹	4.20	4.01	4.07	3.76	4.24	4.18	4.58	5.96	5.57	5.81	4.84	3.90	4.59
1987	4.01	4.83	4.68	5.15	5.62	6.47	6.29	6.18	7.43	10.43	9.10	6.35	6.38
1988	6.43	6.59	6.87	7.76	8.79	8.78	6.47	5.44	5.56	3.11	6.01	6.42	6.52
1989	6.38	6.45	5.98	7.01	8.44	8.53	6.56	3.91	5.62	6.22			

¹ Prior to 1986 prices are for wholesale oranges (Calif.) F.O.B. packed fresh. Source: Economic Research Service, U.S.D.A.

T.453

Palm Oil

In terms of production, palm oil is the world's second major vegetable oil, accounting for 18 percent of global oil output in 1989/90. The USDA forecast world palm oil production at 10.02 million tonnes, 7 percent more than a year earlier. Output in Malaysia, the largest producer, was expected to rise by 5 percent to 5.9 million tonnes. Malaysian production has expanded significantly, jumping from 431,000 tonnes in 1970 to 2.7 million in 1980. Indonesia is the second major producer.

Global palm oil consumption in 1989/90 was forecast at 9.9 million tonnes, 12 percent more than a year earlier. The major consumers are India, Indonesia, Pakistan, Malaysia, Japan, Nigeria, and China. Non-Asian countries are beginning to consume more palm oil. Notable import growth has been seen in Egypt and other African countries.

Malaysia and Indonesia are close to other Asian countries with expanding populations, and this advantage allows them to sell at competitive prices. Palm oil prices are, at times, well below other oils,

like soyoil.

China is consuming much more palm oil, because of a growing population and low prices. India has shown signs of reducing its imports and is shifting purchases from Malaysia to Indonesia. India's imports in 1988/89 were estimated at 900,000 tonnes.

World palm oil exports in 1989/90 were forecast at 6.1 million tonnes, up 6 percent from 1988/89. Malaysia remained the largest exporter with projected shipments of 4.9 million tonnes, 8 percent more than the previous year.

Palm oil is the most widely traded vegetable oil with a market share of 33 percent, compared to 21 percent for soyoil and 12 percent for sunflower seed oil.

World ending stocks of palm oil in 1989/90 were estimated at 1.91 million tonnes, up 8 percent from a year earlier.

The price of palm oil, f.o.b. Malaysia, averaged \$376/tonne in January 1989. By December, it had fallen to \$246.

World Palm Oil Statistics In Thousand Metric Tons

Crop Year	Production									Exports							
	Malay-sia	Colom-bia	Ecu-ador	Indo-nesia	Ivory Coast	Papua N. Guin.	Zaire	Nigeria	World Total	Malaysia	Indo-nesia	Ivory Coast	E.C.-12	Sing-a-pore	Neth-erlands	Papua N. Guin.	World Total
1983-4	3,324	118		1,150	167	110	157	540	6,290	2,819	247	56	136	608		105	3,542
1984-5	3,817	120	85	1,185	164	120	160	550	6,811	3,254	652	56	153	977	92	115	4,431
1985-6	4,772	141	110	1,280	217	125	160	600	8,056	4,101	759	94	169	719	101	120	5,360
1986-7	4,560	148	97	1,300	227	145	150	650	7,979	4,051	637	120	171	563	104	135	5,196
1987-8 ¹	4,852	176	111	1,370	198	145	145	640	8,389	4,178	859	65	158	456	101	135	5,489
1988-9 ¹	5,634	231	121	1,500	203	160	140	575	9,361	4,548	750	52	195	617	130	140	5,790
1989-90 ²	5,900	261	135	1,750	206	160	140	650	10,040	4,900	750	49	213	700	150	140	6,159

¹ Preliminary. ² Projected. Source: Economic Research Service, U.S.D.A.

T.457

Palm Oil—U.S. Supply & Distribution In Millions of Pounds

Year Begin. Oct.				Utilization						Exports (& Ship- ments)	Palm Kernel Oil ¢ Per Pound	Prices			
	Supply		Total Supply	Food Uses				Non-Food Uses	Total Disap- pearance			U.S. Ports C.I.F. ¢ Lb.	Mal- aysia ² U.S. \$ Metric Ton		
	Imports	Stocks Oct. 1		Short- ening	Marg- arine	Salad or Cooking Oil	Other							Total	
1983-4	413	69	482	215					287		402	29		24.6	767
1984-5	373	51	424	226					270		370	0		33.3	569
1985-6	610	53	663	304					364		590	0		27.2	274
1986-7 ¹	747	73	820	247					249		507	0		14.4	310
1987-8 ¹	361	40	401	173					198		341	0		17.3	402
1988-9 ³	298	60	358	151					205		315	4		21.4	358
1989-90 ³	320	39	359								320	4		17.9	286

¹ Preliminary. ² Malaysia FOB; RBD. ³ Estimate. Source: Economic Research Service, U.S.D.A.

T.458

Average Wholesale Palm Oil Prices, CIF, Bulk, U.S. Ports In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	N.A.	N.A.	24.0	23.7	24.4	22.3	18.9	18.6	19.3	18.0	19.0	20.0	20.8
1983	19.5	19.0	18.8	19.8	20.7	19.5	20.6	26.2	30.6	31.1	32.0	37.5	24.6
1984	40.5	38.2	36.6	37.0	43.0	36.3	28.2	28.4	30.3	28.3	32.4	29.8	33.3
1985	28.3	29.0	29.5	34.3	34.6	31.6	28.7	25.1	23.5	21.7	19.9	19.7	27.2
1986	18.4	15.6	13.3	14.3	14.1	14.1	13.2	12.1	11.7	14.6	16.1	15.3	14.4
1987	17.0	17.6	16.9	17.0	16.9	17.1	16.0	16.1	17.2	17.3	17.8	21.1	17.3
1988	24.71	22.56	19.36	19.93	20.67	22.83	24.21	20.95	20.34	20.13	20.90	20.11	21.39
1989	19.27	19.45	19.20	18.79	20.37	20.26	18.88	15.31	15.82	16.10	16.05	15.16	17.89

Source: Economic Research Service, U.S.D.A.

T.459

Paper

In 1989, the paper industry boom of the previous three years appeared to be winding down. A healthy economy and a weak dollar had propelled sales and earnings of the big paper companies to record levels in earlier years. Prices for pulp more than doubled from \$380 per tonne in 1986 to \$830 in 1989.

The industry suffered a profit squeeze in 1989, because it had undertaken a record expansion program. While paper companies conceded that business was down in 1989, they attributed much of the decline to customers' inventory liquidation. Barring

an economic recession in the U.S. or a strengthening of the dollar, company spokesmen did not see a prolonged slump.

Attention was being increasingly focused on recycling. Newsprint makers reported that, while the price outlook was weak, demand was strong. It was believed that newsprint makers would have to build recycling plants, especially since many states have, or plan to have, laws on the books requiring newsprint makers to use some percentage of recycled paper in their production.

Shipments of (Paper Products) Shipping Containers¹ In Millions of Square Feet Surface Area

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	22,918	20,230	22,028	22,871	22,595	21,545	22,257	23,441	22,300	25,838	21,003	19,889	267,453
1986	24,531	21,700	22,479	25,290	23,340	23,495	23,949	23,726	24,390	27,132	21,406	22,030	283,921
1987 ²	24,708	22,811	24,755	25,591	23,637	25,490	25,341	24,977	25,925	27,755	23,281	23,141	297,827
1988 ²	24,782	24,679	27,222	26,053	24,986	25,830	24,470	26,878	26,059	27,890	24,876	23,457	307,457
1989 ²	26,444	24,086	26,755	26,367	26,734	26,391	24,550	27,709	25,354	28,961			

¹ Corrugated & solid fiber. ² Preliminary. Source: National Paperboard Association

T.463

Index Price of Coated Printing Paper, No. 3 (Dec. 1982 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1987	116.1	116.1	116.4	115.7	115.5	115.5	115.5	115.9	116.1	119.9	120.4	120.2	116.9
1988	120.9	121.2	122.2	121.8	122.0	122.0	124.0	126.3	127.5	127.5	127.7	127.8	124.2
1989 ¹	127.8	127.8	129.3	130.3	130.5	130.7	130.9	130.9	130.3	130.3			

¹ Preliminary. Source: Bureau of Labor Statistics (0913-0113)

T.470

Salient Statistics of Newsprint in the United States and Canada In Thousands of Metric³ Tons

Year	Pro- duction	Ex- ports	United States										Canada			Stocks At Mills
			Imports ³ By Countries of Origin								Con- sumption	Stocks, Dec. 31		Pro- duction	Ex- ports	
			Canada	Finland	Italy	Nor- way	Swe- den	U.K.	South Africa	Total		At Mills	At Pub- lishers ²			
1984	5,025	258	7,688	31		63	86			7,899	11,431	60	874	9,013	8,133	298
1985	4,924	279	6,674	42	23	71	119	17	34	8,472	11,587	57	910	8,988	7,964	290
1986	5,107	337	6,735	24	1	80	135	11	39	8,589	11,937	49	849	9,289	8,181	277
1987	5,300	284	7,087	22	14	57	221	26	21	8,975	12,322	36	900	9,673	8,574	189
1988 ¹	5,427	381	7,087								12,336	48	932	9,969	8,640	291
1989 ¹	5,523	485	6,799								12,304	56	766	9,678	8,513	304

¹ Preliminary. ² Reporting only to A.N.P.A.; group represents about 75%. ³ Data for imports are in thousands of short tons. Source: Newsprint Service Bureau, A.P.I.

T.464

Producer Price Index of Standard Newsprint (1982 = 100)²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1987	107.9	108.6	108.4	108.5	108.7	108.7	112.7	116.3	116.9	116.9	117.1	117.0	112.3
1988	127.1	127.9	127.9	127.7	127.9	127.9	127.8	127.7	127.8	127.7	127.5	126.6	127.6
1989 ¹	126.5	126.0	126.6	126.5	123.2	122.0	121.3	122.6	120.1	118.8	118.6		

¹ Preliminary. Source: Bureau of Labor Statistics (0913-0291)

T.468

U.S. Production & Consumption & Foreign Trade of Woodpulp In Thous. of Short Tons⁵

Year	Woodpulp Production						Consumption in the Manufacture of Paper and Board			All Grades Woodpulp		Inventories—Dec. 31			
	Dissolving Pulp	Bleached Sulfate Paper Grades ²	Unbleached	Groundwood	Semi-Chemical	Total Wood Pulp	Wood Pulp ⁴	Waste Paper ⁵	Pulpwood ⁶	Exports	Imports	Pulpwood	Waste Paper	At Pulp Mills	At Paper & Board Mills
1982	1,093	39,478	5,063	3,700	49,333	13,565	79,039	3,395	3,893	5,426	1,017	614	492		
1983	1,261	42,358	5,067	3,851	52,537	14,696	85,442	3,674	4,095	5,229	923	554	550		
1984	1,206	44,690	5,506	4,069	55,470	15,926	87,646	3,694	4,490	5,574	1,053	759	545		
1985	1,174	43,696	5,251	4,027	54,147	15,623	85,744	3,794	4,466	5,046	969	650	492		
1986	1,258	46,081	5,476	4,191	57,005	17,285	91,434	4,308	4,340	4,794	838	458	496		
1987	1,312	48,293	5,702	4,246	59,552	17,993	93,946	4,727	4,531	5,096	920	394	529		
1988 ¹	1,367	49,493	5,943	4,246	61,161	18,860	95,497	5,160	4,505	4,888	1,029	433	622		

¹ Preliminary. ² Chemical pulp. ³ Or exploded. ⁴ Does not include wood pulp consumption by plants classified outside paper & board industries. ⁵ Waste paper; straw; rags; cotton fibre; manila stock; etc. ⁶ Data for pulpwood expressed in: thousands of cords of 128 cu. ft.—roughwood basis. Pulpwood includes slabs, chips, & millwaste. Sources: Bureau of the Census; American Paper Institute. T 465

Paper and Board Production in the United States In Thousands of Short Tons

Year	Paper						Paperboard				Construction ³		
	Newsprint	Coated (Shipments)	Tissue Paper	Uncoated Free Sheet (Shipments)	Groundwood Paper Uncoated (Shipments)	Packaging & Industrial Converting ³ (Shipments)	All Paper Total	Other Bleached Paperboard	Corrugating Material	Unbleached Kraft	All Paperboard Total	Construction (Paper)	Total All Types
1981	4,752	4,940	4,518	8,234	1,463	3,880	31,030	1,900	6,000	14,800	31,232	1,200	66,440
1982	4,574	4,974	4,438	8,184	1,471	3,688	30,422				29,065		
1983	4,688	5,716	4,789	9,060	1,531	3,666	32,823				32,177		
1984	5,025	6,249	4,921	9,510	1,565	3,666	34,447				34,039		
1985	4,924	5,875	4,941	9,952	1,521	3,403	33,996				33,034		
1986	5,107	6,263	5,095	10,681	1,540	3,303	35,510				35,379		
1987	5,300	6,860	5,301	11,206	1,498	2,840	36,876				37,442		
1988 ¹	5,427	7,359	5,476	11,494	1,624	2,800	38,298				38,105		

¹ Preliminary. ² Paper & board. ³ Unbleached kraft. Source: Bureau of the Census. T 467

Index Price of Wood Pulp, Bleached Sulphate Softwood 1982 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1987	114.5	116.7	118.3	122.5	124.3	124.1	125.1	125.5	125.7	130.1	132.4	132.9	124.3
1988	138.6	143.7	144.4	149.3	151.0	154.8	159.9	161.3	161.5	163.0	165.7	167.5	155.1
1989 ¹	176.2	176.9	178.1	180.7	184.8	184.8	184.3	184.3	184.4	185.8			

¹ Preliminary. Source: Bureau of Labor Statistics (0911-0211). T 469

Index Price of Shipping Sack Paper¹ 1982 = 100²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	231.8	238.8	247.2	247.2	247.8	247.8	241.1	241.1	241.1	241.1	241.1	233.0	240.3
1985	233.0	233.0	225.7	223.9	227.5	222.7	211.0	211.0	211.0	211.0	211.0	211.0	219.3
1986	211.0	211.0	211.0	218.0	218.0	218.0	218.0	218.0	218.0	226.8	234.9	234.0	219.7
1987 ²	110.1	113.2	114.0	117.3	117.3	117.3	117.3	117.3	120.4	121.7	125.0	125.4	118.0
1988	125.4	125.4	129.2	130.4	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2	131.3
1989	133.2	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4	144.4			

¹ Unbleached kraft. ² Data prior to 1987 are for Dec. 1973 = 100. Source: Bureau of Labor Statistics (0913-0304). T 471

Index Price of Paperboard 1982 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1987	113.9	115.5	115.5	116.2	115.8	115.9	116.1	119.8	121.3	122.1	122.5	123.1	118.1
1988	126.6	127.1	130.5	132.6	133.4	134.0	134.3	134.5	136.3	136.4	136.5	136.5	133.2
1989 ¹	137.7	138.7	140.4	142.3	142.5	141.0	139.5	140.3	140.3	140.0	139.7		

¹ Preliminary. Source: Bureau of Labor Statistics (0914).

Peanuts and Peanut Oil

World peanut production in 1989/90 was projected by USDA at 22.5 million tonnes, 4 percent less than the previous season. In India, the largest producer, the 1989/90 crop was forecast at 8 million tonnes, down 11 percent from the previous season. China was expected to produce 5.5 million tonnes, 3 percent less than in 1988/89. A larger U.S. crop offset part of the decline in India and China. Senegal's crop was forecast at 820,000 tonnes, up 19 percent. Slight production increases were expected in Brazil and Argentina. Sudan's crop was estimated to be smaller.

The 1989/90 world peanut crush was forecast at 12.33 million tonnes, down 7 percent from the previous season. The major processors were India and China, followed by Senegal. World peanut meal production was expected to be 5.02 million tonnes, down 7 percent. World peanut oil production was projected at 3.53 million tonnes, 7 percent less.

Despite a smaller crop, world trade in peanuts was forecast to increase. The USDA estimated worldwide peanut exports at 1.25 million tonnes, up 5 percent. The U.S. is the major exporter, followed by China and Argentina.

Global peanut meal exports were estimated at 760,000 tonnes, up 3 percent from 1988/89. The major meal exporters were India and Senegal.

World peanut oil exports were projected to rise by 8 percent to 280,000 tonnes. Senegal was the dominant exporter with about 40 percent of the market. China and Argentina also exported some peanut oil. World consumption of peanut oil was projected to be 3.59 million tonnes, down about 7 percent. India accounted for half of world consumption. China was the next largest user.

World ending stocks of peanuts in 1989/90 were projected at 510,000 tonnes, down 6 percent from the previous season. Global ending stocks of peanut meal were projected at only 30,000 tonnes, the same as 1988/89. World ending stocks of peanut oil were unchanged at 50,000 tonnes.

The 1989/90 U.S. peanut crop was estimated at 4.34 billion pounds, up 9 percent. Harvested area was put at 1.65 million acres, up 1 percent and the largest since the mid-1950s. All states in the

Southeast planted more area. Southeastern peanut area was estimated at 1.045 million acres, up about 21,000 from the prior season. Acreage in the Southwestern states was expected to be unchanged. Yields were expected to be about 8 percent above 1988/89. Carry-in stocks of peanuts were forecast at 800 million pounds, with a total supply of about 5.14 billion pounds.

With the larger supplies, the 1989/90 crush was estimated at 800 million pounds, up from 700 million. Peanut oil production was expected to be 236 million pounds, down from 249 million. The U.S. is the largest exporter of both peanut oil and meal.

The U.S. is also a major exporter of peanuts, trailing India and China. U.S. exports were forecast at 800,000 tonnes, 9 percent above 1988/89. The major buyers were the EC countries, especially Britain and the Netherlands, and Canada and Japan. The U.S. exports peanut oil primarily to Canada, Hong Kong, and the EC.

Domestic food use of peanuts in 1989/90 was forecast at 2.32 billion pounds, an increase of 3 percent. Food use rises virtually every year.

A number of products are made from shelled edible peanuts, including peanut butter, salted peanuts, and peanut candy. The U.S. is a large exporter of peanut butter, with shipments in 1988/89 totaling 6,600 tonnes. The major buyers are Saudi Arabia, Japan and the EC.

With total U.S. supplies of 5 billion pounds and with use, including loss and shrinkage, of about 4.3 billion, ending stocks of peanuts were projected at over 800 million pounds.

During the Oct. 1988-Sept. 1989 period, prices of peanuts in Rotterdam averaged \$818 per tonne, 17 percent less than the previous year.

U.S. Government Program

The USDA indicated that the 1990 peanut crop would have a national poundage quota of 1.56 million short tons, compared with a quota of 1.44 million in 1989. The national support price in 1989 was \$615.87 per short ton.

World Production of Peanuts (in the Shell) In Thousands of Metric Tons

Crop Year	Argentina	Brazil	Burma	China (mainland)	India	Indonesia	Mali	Nigeria	South Africa	Senegal	Sudan	Taiwan	Thailand	United States	Zaire (Congo)	World Total
1979-0	337	545	337	2,822	5,768	783	116	377	348	673	852	86	109	1,800	313	17,429
1980-1	243	310	431	3,600	5,005	791	92	530	309	521	707	82	129	1,045	320	16,271
1981-2	270	305	564	3,826	7,223	728	92	428	116	878	740	83	147	1,806	347	19,832
1982-3	250	250	541	3,916	5,282	795	80	396	89	1,109	497	63	145	1,560	357	17,435
1983-4	329	220	532	3,951	7,086	747	50	591	72	568	413	87	147	1,495	367	18,738
1984-5	270	337	667	4,815	6,436	755	45	500	196	560	390	89	172	1,998	375	19,683
1985-6	439	216	560	6,664	5,120	780	90	400	111	587	275	77	172	1,870	375	19,990
1986-7	518	195	544	5,882	5,875	750	90	400	235	817	350	83	169	1,679	380	20,385
1987-8	450	170	519	6,170	5,300	786	100	475	204	932	435	100	162	1,642	380	20,339
1988-9 ¹	270	140	565	5,690	9,000	795	115	350	230	690	450	95	170	1,806	380	23,330
1989-90 ²	370	180	575	5,500	8,000	800	90	450	230	820	400	100	162	1,969	380	22,480

¹ Preliminary. ² Estimated. Source: Foreign Agricultural Service, U.S.D.A.

PEANUTS AND PEANUT OIL

Salient Statistics of Peanuts in the United States

Crop Year	Acreage Planted (1,000 Acres)	Acreage Harvested For Nuts	Average Yield Per Acre In Lbs.	Production Picked and Threshed 1,000 Lbs.	Season Farm Price ¢ Lb.	Farm Value Million Dollars	Thousand Pounds (Yr. Beg. Aug.)			
							Exports		Imports	
							Unshelled	Shelled	Unshelled	Shelled
1976-7	1,549	1,518	2,464	3,739,190	20.0	746,675	24,765	580,496	432	66
1977-8	1,545	1,512	2,456	3,715,055	21.0	780,869	64,284	705,032	413	148
1978-9	1,541	1,509	2,619	3,952,384	21.1	833,885	94,612	783,236	413	139
1979-0	1,546	1,520	2,611	3,968,485	20.6	819,276	64,810	745,828	424	140
1980-1	1,521	1,400	1,645	2,302,762	25.1	578,635	33,071	353,683	3,597	300,710
1981-2	1,514	1,489	2,675	3,981,850	26.9	1,069,526	77,998	374,812	6	4,632
1982-3	1,311	1,277	2,693	3,440,255	25.1	862,686	51,321	473,416	844	1,323
1983-4	1,411	1,374	2,399	3,295,530	24.7	814,579	39,509	529,949	298	1,715
1984-5	1,563	1,531	2,878	4,405,745	27.9	1,230,720	72,907	592,333	79	2,167
1985-6	1,490	1,467	2,810	4,122,787	24.3	1,003,412	83,747	721,690	1,493	1,942
1986-7	1,573	1,537	2,407	3,700,745	29.2	1,074,487	75,306	441,954	33	1,598
1987-8 ¹	1,567	1,546	2,341	3,619,440	28.0	1,015,658				
1988-9 ¹	1,657	1,628	2,445	3,980,917	26.9	1,129,099				
1989-90 ²	1,677	1,639	2,523	4,134,700	28.0	1,157,716				

¹ Preliminary. ² Estimate. Source: Economic Research Service, U.S.D.A.

T.475

Peanuts Supply & Disposition (Farmers' Stock Basis) & Support Program in the United States

Crop Year Begin. Aug. 1	Supply				Disposition				Food Use		Total Disap-pear.	Government Support Program				Owned by CCC July 31 Mi. Lbs.
	Production ³	Im-ports	Stocks Aug. 1	Total	Exports & Ship-ments	Crushed for Oil	Seed, Loss & Residual	Military	Civilian			Support Price ¢ per lb.	Additional Quantity Mi. Lbs.	% of Prod.		
	Million Pounds															
1977-8	3,715	1	608	4,324	1,025	487	556	—	1,675	3,743	21.50		535	14.4		2
1978-9	3,952	1	581	4,534	1,141	527	521	—	1,759	3,948	21.00	12.5	515	12.9		—
1979-0	3,968	1	586	4,555	1,057	571	522	—	1,777	3,927	21.00	15.0	709	17.9		—
1980-1	2,303	401	628	3,332	503	446	505	—	1,465	2,919	22.75	12.5	337	14.6		—
1981-2	3,982	2	413	4,397	576	573	795	—	1,696	3,640	22.75	12.5	835	20.9		2
1982-3	3,440	2	757	4,199	681	342	463	—	1,849	3,335	27.50	10.0	539	15.7		—
1983-4	3,296	2	864	4,162	744	387	564	—	1,856	3,551	27.50	9.3	367	11.1		—
1984-5	4,406	2	611	5,019	860	625	199	—	1,911	3,595	27.50	9.3	1,370	30.9		—
1985-6	4,123	2	1,424	5,549	1,043	812	826	—	2,023	4,704	27.95	7.4	1,359	33.0		—
1986-7	3,701	2	845	4,548	663	514	294	—	2,073	3,545	30.37	7.5	290	7.8		—
1987-8	3,620	2	1,003	4,625	618	560	543	—	2,071	3,791	30.37	7.5	700	19.3		—
1988-9 ¹	3,981	2	833	4,816	688	814	230	—	2,254	3,986	30.76	7.5				
1989-90 ²	4,342	2	830	5,174	750	750	498	—	2,325	4,324	30.79	7.5				

¹ Preliminary. ² Estimate. ³ Production is on a net weight basis. Source: Economic Research Service, U.S.D.A.

T.476

U.S. Production of Peanuts (Harvested for Nuts) by States In Millions of Pounds

Crop Year	Ala-bama	Arkan-sas	Florida	Georgia	Loui-siana	Missis-sippi	New Mexico	No. Car.	Okla-homa	So. Car.	Ten-nessee	Texas	Virginia	U.S. Total
1977	589.1	—	170.5	1,499.1	—	11.6	25.4	444.1	267.6	31.2	—	394.5	293.0	3,715
1978	551.8	—	182.1	1,725.3	—	13.1	24.1	465.4	207.0	35.7	—	436.5	311.6	3,952
1979	584.9	—	179.9	1,704.8	—	12.4	25.3	378.5	264.0	32.3	—	533.0	253.5	3,968
1980	265.0	—	143.0	994.6	—	7.5	22.4	291.3	140.2	14.3	—	293.3	129.8	2,303
1981	602.7	—	178.0	1,655.5	—	12.7	24.9	555.6	189.3	39.0	—	393.3	330.8	3,982
1982	522.2	—	153.0	1,517.5	—	—	25.2	417.2	174.6	30.0	—	325.1	275.5	3,440
1983	454.5	—	166.8	1,568.0	—	—	25.6	318.3	176.5	25.0	—	362.3	198.6	3,296
1984	648.6	—	246.4	2,160.0	—	—	32.2	449.5	189.0	39.2	—	371.3	269.7	4,406
1985	590.0	—	216.0	1,921.3	—	—	32.0	452.0	171.0	34.2	—	422.6	283.7	4,123
1986	494.9	—	233.2	1,632.6	—	—	28.7	440.4	184.5	25.5	—	385.0	275.9	3,701
1987	465.3	—	215.8	1,575.0	—	—	33.5	392.2	222.8	31.2	—	441.0	243.0	3,619
1988	561.7	—	228.6	1,801.6	—	—	30.6	420.0	225.0	32.1	—	417.5	263.9	3,981
1989 ¹	585.6	—	239.2	1,918.0	—	—	34.5	405.5	218.6	35.0	—	455.4	243.0	4,135

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.477

PEANUTS AND PEANUT OIL

U.S. Peanut Oil Utilization by Uses In Millions of Pounds

Yr. Begin Oct. 1	Baking or Frying Fats	Total Edible	Yr. Begin Oct. 1	Baking or Frying Fats	Total Edible
1982-3	162	174	1986-7		151
1983-4	120	131	1987-8 ¹		166
1984-5		118	1988-9 ¹		172
1985-6		137	1989-90		

¹Preliminary. Source: Economic Research Service, U.S.D.A.

Disappearance and Reported Uses of Peanuts and Products in the U.S. In Millions of Pounds

Year Begin, Aug. 1	Apparent Disappear. ² (Milled Peanut Prod.)						Reported Used (Shelled Peanuts—Raw Basis)								Oil Stock Crushed For Oil, Cake & Meal	Total All Grades
	Shelled Peanuts						Edible Grades Used in									
	Edible Grades	Oil Stock ³	Total All Grades	Cleaned (In Shell)	Crude Peanut Oil ⁴	Cake & Meal ⁴	Peanut		Sand- wich Spread	Butter ⁵	Other Products	Roast- ing Stocks	Total			
							Candy	Salted								
1977-8	1,895	461.2	2,356	190.6	179.1	208.9	235.2	274.2	28.2	623.8	18.7	126.7	1,180	366.2	1,546	
1978-9	1,955	426.9	2,382	210.9	161.6	227.9	268.4	291.6	28.1	664.9	19.1	116.7	1,272	396.0	1,668	
1979-0	1,979	503.9	2,483	201.4	175.3	228.4	258.4	284.9	30.3	700.0	19.3	137.1	1,293	429.1	1,722	
1980-1	1,097	306.0	1,403	120.3	143.5	189.6	237.9	205.5	24.1	588.6	19.7	90.8	1,076	335.5	1,411	
1981-2	1,096	377.6	2,283	200.7	155.7	233.7	255.9	278.0	22.7	653.7	15.3	122.7	1,225	431.5	1,657	
1982-3				206.4			145.5	284.2	308.1	21.9	677.6	17.0	155.9	1,309	256.4	
1983-4				173.0			149.9	298.1	302.0	24.3	671.4	15.5	133.8	1,311	291.1	
1984-5				211.9				290.3	309.1	26.2	697.1	19.2	139.1	1,342	470.3	
1985-6 ¹				234.6				313.8	358.5	24.6	701.3	23.5	152.3	1,422	610.9	
1986-7 ¹				215.1				321.2	384.3	33.9	679.4	41.1	139.4	1,460	386.4	
1987-8 ¹								325	374	46	701	38		1,484		
1988-9 ¹								327	382	28	832	36		1,605		

¹Preliminary. ²Includes in transit, exports and domestic use, except for oil stock for which disappearance is assumed to equal crushings. ³Graded & ungraded oil stock only. ⁴Relates to peanut oil mills only. ⁵Peanuts used in peanut butter by mfrs. for own use in candy is included under peanut candy. Source: Statistical Reporting Service, U.S.D.A. T.481

World Peanut Oil Salient Statistics In Thousands of Metric Tons

Crop Year	Production				Imports		Exports				Consumption					Ending Stocks Total
	Bur- ma	China	India	Total	EC-12	Total	Arg- entina	China	Sen- egal	Total	Bur- ma	China	EC-12	India	Total	
1983-4	136	490	1,608	2,926	279	343	30	49	92	295	136	441	254	1,608	2,970	46
1984-5	171	632	1,520	3,028	244	313	28	40	42	274	171	592	227	1,520	3,085	31
1985-6	143	871	1,221	2,956	238	300	33	80	81	330	143	794	212	1,221	2,873	70
1986-7	139	754	1,360	3,101	260	328	77	80	100	356	139	679	233	1,360	3,093	61
1987-8	133	806	1,234	2,995	293	368	55	30	125	317	133	782	272	1,234	2,916	43
1988-9 ¹	144	738	1,910	3,750	261	340	25	30	107	220	144	718	235	1,910	3,860	46
1989-90 ²	147	806	1,845	3,460	258	330	36	30	115	250	147	781	232	1,845	3,550	40

¹Preliminary. ²Forecast. Source: Foreign Agricultural Service, U.S.D.A.

T.482

Production, Consumption, Stocks and Foreign Trade of Peanut Oil in the U.S. In Millions of Pounds

Crop Yr. Begin. Oct.	Production		Consumption		Stocks—Sept. 30		Imports for Con- sumption	Exports	
	Crude	Refined	In Refining	In End prod's.	Crude	Refined		Crude	Refined
1977	252.0	249.7	257.2	243.9	91.5	7.6	—	71.8	9.7
1978	145.2	171.9	178.0	169.0	7.3	4.7	—	32.9	7.6
1979	183.0	130.1	134.3	120.4	22.6	7.3		14.4	1.2
1980	182.4	170.6	166.7	165.3	7.5	4.3		46.0	1.6
1981	141.6	122.8	133.5	115.3	12.9	5.2		38.1	2.7
1982-3 ¹	N.A.	168.8	183.9	174.0	N.A.	3.9	3.8	4.5	.5
1983-4	N.A.	139.6	148.4	132.9	17.9	4.0	1.9	5.1	.4
1984-5	138.2	119.9	124.6	N.A.	9.6	4.8	.9	33.4	1.5
1985-6	N.A.	139.7	145.7	N.A.	64.9	4.0	.5	78.0	—
1986-7	144.2	160.0	169.0	153.2	17.0	3.6	2.4	5.5	.8
1987-8 ²	144.6	199.6	207.5	179.3	10.9	3.8	2.2	4.7	2.0

¹Data prior to 1982-83 are for the calendar years. ²Preliminary. Source: Bureau of Census

T.483

PEANUTS AND PEANUT OIL

Average Price Received by Producers in U.S. for Peanuts in the Shell In Cents Per Pound

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average ¹
1978-9	21.2	20.8	21.4	21.0	20.8	21.2	—	—	—	—	—	—	21.1
1979-0	—	21.4	20.3	20.4	20.4	20.4	—	—	—	—	—	—	20.6
1980-1	—	22.5	23.2	27.9	37.3	47.7	—	—	—	—	—	—	25.2
1981-2	25.7	28.9	26.7	25.1	25.8	24.9	—	—	—	—	—	—	26.8
1982-3	27.1	25.1	24.9	25.3	26.1	22.9	—	—	—	—	—	—	25.0
1983-4	—	25.2	24.3	24.5	26.0	27.8	—	—	—	—	—	—	24.6
1984-5	24.7	29.9	27.1	25.6	26.3	—	—	—	—	—	—	—	27.9
1985-6	29.6	24.4	24.3	24.6	23.3	20.6	—	—	—	—	—	—	24.4
1986-7	29.7	27.0	28.8	29.8	32.5	24.5	—	—	—	—	—	—	29.2
1987-8	20.0	29.2	27.9	27.4	27.6	28.5	—	—	—	—	—	—	27.7
1988-9 ²	20.0	29.0	26.9	25.6	24.6	27.8	—	—	—	—	—	—	27.9
1989-90 ²	28.3	27.7	27.6	28.0	28.1	32.0	—	—	—	—	—	—	27.5

¹ Weighted average by sales. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.479

Crude Peanut Oil Produced² in the United States In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	11.7	14.2	22.5	18.6	23.0	15.5	8.2	10.8	4.5	4.5	6.1	7.7	183.0
1980	6.2	15.1	16.7	25.9	30.7	22.9	23.5	21.2	5.9	2.1	6.3	5.9	182.4
1981	6.1	6.0	10.5	17.3	19.1	19.5	13.6	9.8	5.3	9.7	12.0	12.7	141.6
1982	11.3	11.1	19.4	26.3	22.3	19.0	15.0	11.8	N.A.	N.A.	N.A.	N.A.	N.A.
1983	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1984	12.1	13.3	10.8	12.5	10.1	8.9	5.1	5.3	4.3	9.9	8.6	7.3	108.2
1985	9.8	13.9	15.8	15.5	14.5	12.4	10.4	10.0	10.1	9.2	10.2	14.9	146.7
1986	19.2	21.1	19.9	20.8	24.0	26.4	14.2	9.6	N.A.	4.1	11.9	10.7	181.9
1987	9.8	13.6	20.5	11.6	17.8	15.8	14.5	9.7	4.2	7.5	13.7	13.1	151.8
1988	13.8	14.9	10.1	8.3	19.5	12.5	17.0	11.4	2.8	9.7	17.0	18.4	155.4
1989 ¹	10.5	20.8	27.8	24.3	19.0	33.4	26.6	22.4	13.0	5.9	—	—	—

¹ Preliminary. ² Not seasonally adjusted. Source: Statistical Reporting Service, U.S.D.A.

T.473

Average Price of Domestic Crude Peanut Oil (in Tanks) F.O.B. Southeast Mills In Cents Per Pound

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
1979-0	34.4	31.1	29.5	25.9	25.8	22.9	20.5	22.4	23.1	26.9	33.2	36.0	27.6
1980-1	35.8	48.7	49.1	47.7	39.3	34.1	34.0	37.1	38.0	38.1	43.2	40.3	40.5
1981-2	34.5	34.5	30.9	27.3	31.4	23.3	29.1	29.9	26.2	24.7	22.7	22.5	28.1
1982-3	22.9	25.2	26.1	25.6	25.7	24.1	25.1	26.4	26.4	26.7	30.7	50.5	28.0
1983-4	50.7	48.8	48.1	47.3	46.5	48.4	52.6	58.2	59.1	57.7	54.8	39.2	47.3
1984-5	36.7	41.2	41.4	39.2	38.8	40.3	49.6	46.2	40.7	39.7	37.6	33.9	40.4
1985-6	38.3	42.2	36.1	29.5	22.6	21.5	24.4	27.6	28.0	27.5	30.5	28.3	29.7
1986-7	27.80	29.80	26.50	25.10	25.00	23.75	24.00	26.15	25.68	25.27	24.61	26.74	25.87
1987-8	33.48	31.50	32.10	35.73	32.40	29.61	29.50	30.02	34.00	39.80	37.86	36.00	33.50
1988-89	42.50	36.75	34.25	26.50	25.09	29.98	32.39	36.25	—	—	35.75	34.13	33.36

Source: Agricultural Marketing Service, U.S.D.A.

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Pepper

With evidence that India would have less pepper to export, pepper prices rose sharply from late 1988 into 1989. Through most of the 1980s, world consumption of pepper exceeded production. While it appeared that global production would begin to trend higher, there were new indications that the 1988/89 Indian crop would be hurt by unfavorable weather. Other major producers were Indonesia, Brazil, and Malaysia.

Pepper prices peaked in January 1988. While high prices during the 1985-87 period resulted in more plantings, it takes about three years for plants to come into production. During the first half of 1988, prices fell sharply, reaching 4-year lows in October 1988.

The 1988/89 Indian crop was affected by the early onset of the monsoon, which did not allow the vines an adequate rest period. As a result, India's ability to export pepper was limited. Most of its exports go to Eastern Europe and the USSR.

In Brazil, the high prices of previous years encouraged producers to plant new vines, but some of this acreage was in areas susceptible to weather problems. Brazil's exports have declined from a record of 47,000 tonnes in 1981.

Indonesia is a major producer of both white and

black pepper. White pepper production on the island of Bangka has increased in recent years with more acreage. Both Indonesia and Malaysia were expected to increase production and exportable supplies in the late 1980s.

One development was the lifting of the "blocklisting" action on Indian pepper by the Food and Drug Administration (FDA). Under the action, U.S. imports of Indian Malabar black pepper had been automatically detained at ports for inspection. Later, the FDA and the government of India agreed on a certification program through which the Indian Ministry of Commerce would test each lot of pepper to be exported to the U.S. The FDA will not detain and inspect these shipments.

The major pepper importers are the U.S., USSR, West Germany and Japan. U.S. imports of black pepper in 1988 were 26,939 tonnes, down 14 percent from 1987. Indonesia provided 11,100 tonnes, and was followed by India with 7,500 and Brazil with 6,000. The U.S. also imported 4,326 tonnes of white pepper in 1988.

In October 1988, the spot price of Brazilian black pepper in New York was 99.5 cents/lb. By March of 1989, prices had climbed to \$1.59.

World Exports of Pepper (Black & White) and Prices

Year	Exports (metric tons)							New York Spot Prices (¢ per pound)					
	Brazil	India	Indonesia	Singapore ²	Madagascar	Sarawak	Sri Lanka	Indonesian		Brazilian		Indian	
								Lampung Black	Muntok White	Black	White	Malabar Black	Telli-cherry ³
1978	29,505	19,370	37,090	40,904	1,566	30,780	1,205						
1979	25,186	20,545	24,986	38,395	1,894	36,118	876	93.7	132.6	91.9	129.7	93.9	112.2
1980	31,964	26,795	29,345	33,233	1,674	30,709	945	87.6	120.9	83.3	116.3	87.6	102.5
1981	46,895	18,636	33,996	30,098	1,440	28,696	2,042	68.8	101.5	62.3	100.0	80.4	103.8
1982	44,539	20,454	36,327	26,459	1,796	25,010	1,238	66.3	84.8	62.1	84.7	69.2	83.7
1983	30,363	27,982	45,061	N.A.	2,802	23,481	1,120	72.1	96.7	65.5	96.2	76.0	86.5
1984	36,499	28,381	33,817		2,097	16,502	2,202	98.6	153.9	96.5	152.8	98.9	115.2
1985	24,676	19,538	26,202		2,002	19,070	1,260	169.6	190.6	167.4	190.4	169.6	185.3
1986	22,069	49,808	29,566		972	15,380	1,286	215.0	275.3	212.5	275.3	214.6	235.1
1987 ¹	27,227	32,261	29,995		1,131	14,185	2,015	237.1	267.7	235.9	267.7	236.0	262.8
1988 ¹								173.9	243.4	170.3		170.3	220.6

¹ Preliminary. ² Reexports. ³ Extra. Source: Foreign Agricultural Service, U.S.D.A.

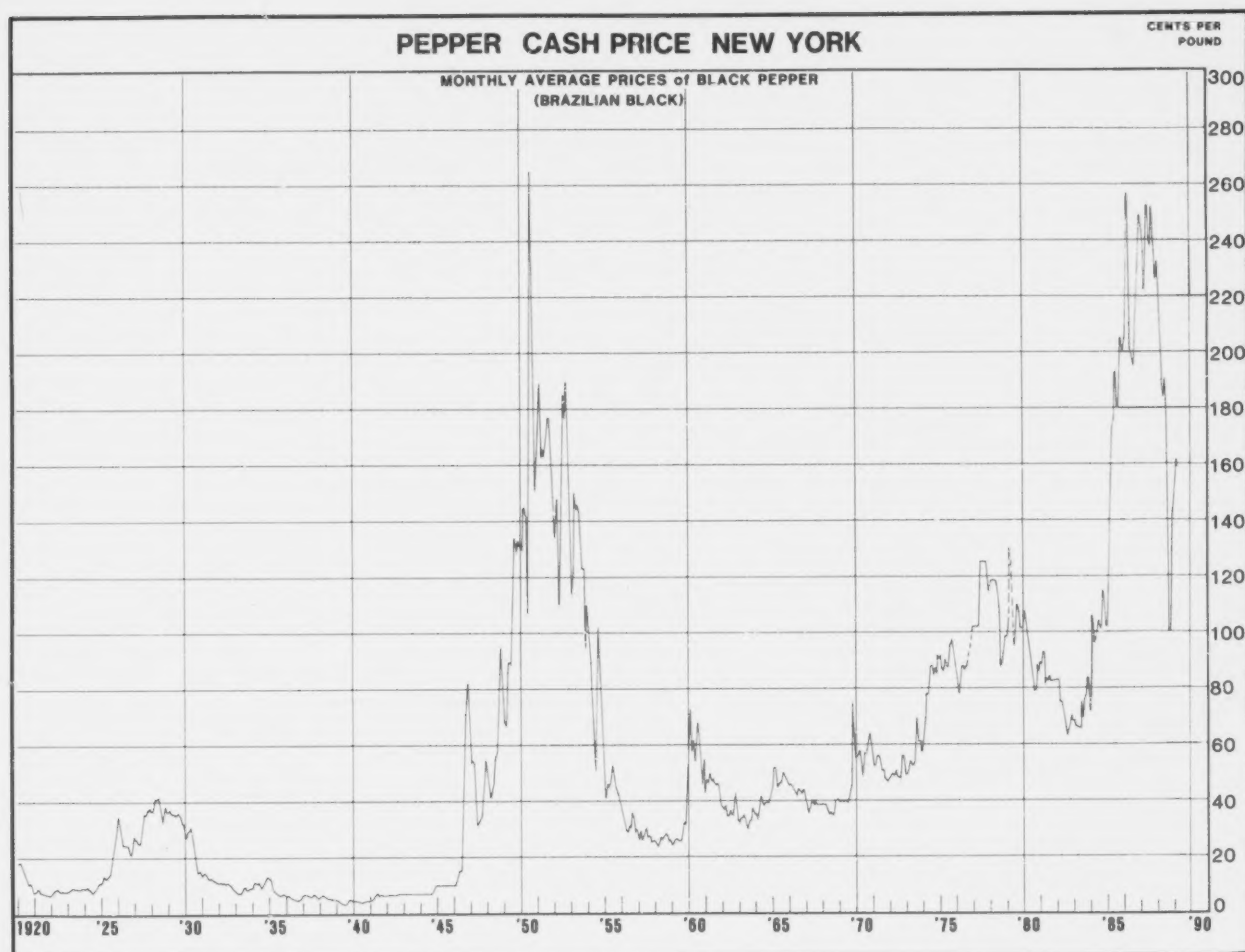
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United States Imports of Unground Pepper from Specified Countries In Metric Tons

Year	Black Pepper										White Pepper						
	Brazil	Mexico	Sri Lanka (Ceylon)	Spain	India	Indonesia	Malaysia	Singapore	China	Total	Brazil	China	W. Ger- many	Indone- sia	Malay- sia	Singapore	Total
1978	10,472		186		1,880	10,595	2,293	604	6	26,142	285	—		1,994	64	28	2,382
1979	9,704		281	—	627	10,898	2,644	156	61	24,482	414	10	—	2,159	51	94	2,756
1980	10,075	131	3,194														
1981	14,716	75	2,503														
1982	14,887	10	172	—	848	11,620	172	63	3	27,811	423	1	5	2,194	—	95	2,721
1983	13,047	—	256	—	2,498	12,327	25	120	3	28,346	571	17	6	2,460	—	65	3,130
1984	10,369	3	158	34	4,024	9,814	131	322	378	27,421	246	260	10	3,805	100	100	4,762
1985	12,227	3	158	34	4,024	9,814	131	322	378	27,421	246	260	10	3,805	100	100	4,762
1986	9,416	7	255	1	20,976	5,980	634	120	243	38,063	134	171	7	2,846	65	140	3,578
1987	11,981	23	388	—	9,341	6,958	1,667	379	107	31,372	65	6	1	4,238	22	110	4,533
1988 ¹	6,033	119	344	—	7,481	11,131	1,400	104	14	26,939	20	2	25	4,169	12	26	4,326

¹ Preliminary. Source: Foreign Agricultural Service, U.S.D.A.

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Average Black Pepper Prices in New York In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1974	64.0	70.0	78.0	78.0	85.0	88.0	88.0	85.0	87.5	85.5	92.0	91.0	82.7
1975	91.5	87.0	86.0	90.0	89.0	87.5	88.5	95.0	97.0	94.0	87.5	85.0	89.8
1976	81.0	79.0	77.5	88.0	88.0	87.0	87.5	87.5	N.A.	N.A.	N.A.	102.0	86.4
1977	102.0	102.0	102.0	102.0	125.0	125.0	125.0	125.0	125.0	125.0	114.5	N.A.	115.7
1978	118.5	118.5	118.5	118.5	117.5	109.0	107.5	88.0	88.5	95.5	98.5	98.5	106.4
1979	105.0	N.A.	130.0	N.A.	N.A.	95.0	97.0	110.0	108.0	108.0	102.0	101.3	106.3
1980	108.0	101.0	96.3	93.0	87.0	84.3	82.8	79.0	79.0	88.0	86.5	89.3	89.5
1981	88.5	93.3	92.0	81.0	83.0	82.3	84.0	82.5	82.3	82.3	82.5	82.5	84.7
1982	82.5	82.5	75.0	75.0	70.0	69.0	67.0	63.0	69.0	70.5	68.5	68.3	71.7
1983	68.3	66.5	66.3	65.5	65.5	65.5	75.0	69.3	76.3	77.3	83.5	83.5	71.9
1984	105.7	102.0	95.7	97.0	100.7	102.0	103.7	101.3	109.0	115.3	107.3	102.3	103.5
1985	114.0	124.3	145.0	173.3	175.7	190.7	192.7	180.0	180.0	193.0	205.0	200.0	172.8
1986 ¹	197.6	210.5	250.0	206.0	188.2	193.8	193.8	190.8	204.8	226.0	232.0	246.2	212.5
1987	241.4	231.0	218.8	232.5	245.2	241.8	232.6	232.5	251.5	241.4	238.5	233.8	235.9
1988	233.3	228.8	210.5	190.3	184.3	190.5	182.8	141.5	100.2	99.5	138.2	143.0	170.3
1989	156.8	161.8	159.0										

¹ Brazilian black since 1986. Source: Bureau of Labor Statistics (0289-0131); N.Y. Wall St. Journal; CRB; Foreign Agricultural Service, U.S.D.A.

Petroleum

Global free-market petroleum demand was expected to average over 51.9 million barrels per day (bpd) in 1989. This was an increase of 1.2 million bpd, or 2.4 percent, from 1988 and only 310,000 bpd below the record set in 1979, the year of the second oil price shock, according to preliminary estimates by the U.S. Department of Energy. Demand was expected to rise to 53.03 million bpd in 1990, assuming 2.6 percent real economic growth in the OECD nations.

Petroleum demand in the OECD countries was forecast to average 37.5 million bpd in 1989, a 1.5 percent increase over 1988 usage. Japan was expected to account for over half of the gain. In 1990, OECD demand was expected to rise by 530,000 bpd, or 1.4 percent. Japan and Europe were expected to account for two-thirds of the gain, with the U.S. providing about 30 percent.

Strong growth also was expected to continue in developing industrialized countries like South Korea, where demand during the first 10 months of 1989 increased about 15 percent over 1988 levels. In 1989, petroleum demand in other market economies was forecast to average almost 14.5 million bpd, up 4.8 percent from 1988. Demand was expected to rise 560,000 bpd in 1990, a 3.9 percent increase. Some of that was tied to export growth, but increasing amounts were expected to reflect expanding domestic demand as living standards rise in the industrializing economies.

World oil production through the first three quarters of 1989 averaged 58.967 million bpd, compared with 58.464 million for all of 1988. Rising OPEC production in the fourth quarter and a recovery in North Sea output was expected to bring the 1989 final average to about 59.5 million bpd.

OPEC's oil production quotas were honored more in the breach than the observance during 1989. Apparently, however, the oil was readily absorbed by the world market. OPEC's nominal export quota was increased by 1 million bpd to 20.5 million at its September meeting in Geneva. At the time, OPEC production was believed to be averaging about 22 million bpd. The daily ceiling was raised to 22 million bpd at the November meeting in Vienna, but

OPEC was believed to be pumping between 23 million and 24 million bpd in December 1989. At that time, perceived demand for OPEC oil was only 22.5 million bpd. Nevertheless, oil prices remained firm, topping \$20/bbl. for the futures basis grade of West Texas Intermediate in December 1989. The January 1990 crude oil futures contract expired on December 19, 1989, at \$22.33/bbl, compared with the January 1989 contract's expiration at \$17.73.

Forecasts of 1990 demand for OPEC oil averaged 21 million bpd, leading some analysts to expect price weakness to develop by the end of the first quarter. But similar predictions failed to materialize during 1989, although global demand for petroleum products appeared to be running about 1 million bpd over expectations.

Total U.S. demand for petroleum and petroleum products in 1989 was projected at 17.25 million bpd, down marginally from 17.28 million in 1988. The decline resulted from a return to a more normal weather pattern for the year, compared with the very cold winter and extremely hot summer of 1988, and a recovery in hydroelectric generation from the drought-impaired levels of the previous two years.

Assuming a normal winter and a 1.8 percent rate of economic growth in 1990, U.S. petroleum demand was projected at 17.69 million bpd in the first quarter, unchanged from fourth-quarter 1989. For the year, demand was forecast at 17.41 million bpd, up less than 1 percent from 17.25 million for all of 1989. But net imports of petroleum and petroleum products were expected to rise to 5.94 million bpd from 5.69 million in 1989.

Futures Markets

Futures contracts on crude oil, heating oil, unleaded regular gasoline and residual fuel oil are traded on the New York Mercantile Exchange (NYMEX), along with options on heating oil, crude oil and gasoline. Heating oil also is traded on the London International Petroleum Exchange, where it is called gas oil. Brent crude oil futures and options on gas oil are also traded in London.

World Production of Crude Petroleum, by Specified Countries In Thousand Barrels Per Day

Year	Algeria	Canada	China	Libya	Iran	Iraq	Kuwait	Nigeria	Mexico	Indonesia	United Kingdom	USSR	Saudi Arabia	United States	Venezuela	World Total
1979	1,224	1,500	2,122	2,092	3,168	3,477	2,500	2,302	1,461	1,591	1,568	11,187	9,532	8,552	2,356	62,477
1980	1,106	1,435	2,114	1,787	1,662	2,514	1,656	2,055	1,936	1,577	1,622	11,460	9,900	8,597	2,168	59,353
1981	1,002	1,285	2,012	1,140	1,380	1,000	1,125	1,433	2,313	1,605	1,811	11,552	9,815	8,572	2,102	55,778
1982	987	1,271	2,045	1,150	2,214	1,012	823	1,295	2,748	1,339	2,065	11,615	6,483	8,649	1,895	53,184
1983	968	1,356	2,120	1,105	2,440	1,005	1,064	1,241	2,689	1,343	2,291	11,684	5,086	8,688	1,801	52,967
1984	1,014	1,438	2,296	1,087	2,174	1,209	1,157	1,388	2,780	1,412	2,480	11,576	4,663	8,879	1,798	54,203
1985	1,037	1,471	2,505	1,059	2,250	1,433	1,023	1,495	2,745	1,325	2,530	11,250	3,388	8,971	1,677	53,646
1986	945	1,474	2,620	1,034	2,035	1,690	1,419	1,467	2,435	1,390	2,539	11,540	4,870	8,680	1,787	55,872
1987	1,048	1,535	2,690	972	2,298	2,079	1,585	1,341	2,548	1,343	2,406	11,690	4,265	8,349	1,752	56,306
1988 ²	1,040	1,610	2,728	1,055	2,259	2,646	1,492	1,450	2,512	1,328	2,232	11,679	5,288	8,140	1,903	58,464
1989 ¹	1,097	1,580	2,742	1,084	2,856	2,768	1,726	1,657	2,500	1,366	1,729	11,442	4,975	7,687	1,860	58,878

¹ Estimate. ² Preliminary. Source: Energy Information Administration

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United States Production of Gasoline¹ (Includes Aviation) In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	191.8	165.7	186.5	183.4	196.7	203.5	210.7	200.1	196.5	194.9	188.9	203.2	2,322
1983	188.7	164.3	183.7	186.7	199.0	200.6	208.8	203.7	199.3	192.7	199.7	196.1	2,323
1984	187.7	184.1	197.6	196.4	207.0	199.6	200.9	199.5	196.2	198.7	202.1	201.4	2,371
1985	184.2	166.2	189.0	191.1	204.3	204.2	211.5	212.3	189.8	197.8	195.2	206.7	2,352
1986	202.8	177.3	188.6	195.8	220.9	214.1	216.8	221.2	208.7	206.0	207.5	216.5	2,476
1987 ²	208.2	179.0	204.0	206.5	217.5	213.7	219.2	215.9	208.6	207.5	207.7	218.1	2,506
1988 ²	209.1	195.8	208.2	207.9	213.2	210.3	222.9	224.3	209.3	213.4	212.4	227.2	2,555
1989 ²	215.6	186.7	205.7	205.2	215.8	219.6	228.9	222.9	212.9				

¹ Gasoline and naphtha from crude petroleum and natural gasoline used at refineries. ² Preliminary. Source: Bureau of Mines

T.502

United States Domestic Consumption of Gasoline In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	185.5	174.0	201.2	207.7	207.1	206.1	211.4	206.1	196.9	198.8	197.6	203.6	2,396
1983	187.8	168.9	212.5	194.4	205.8	210.8	210.7	216.0	202.8	205.2	198.8	212.9	2,427
1984	194.6	181.4	202.8	201.1	214.7	214.1	212.5	220.9	198.3	209.2	204.7	203.7	2,458
1985	197.5	185.0	207.4	209.6	219.7	210.8	218.3	225.6	199.8	214.6	203.7	211.4	2,503
1986	202.2	181.7	216.5	214.1	221.4	217.3	231.6	231.7	207.8	225.6	207.1	222.1	2,579
1987 ¹	201.2	189.1	215.5	220.5	232.5	227.1	235.9	228.4	216.9	227.2	215.1	225.3	2,639
1988 ¹	207.8	203.8	226.0	222.2	226.4	236.1	232.7	233.7	223.0	226.2	222.0	228.3	2,695
1989 ¹	209.4	199.1	230.8	215.4	230.7	234.9	227.7	240.2	217.6				

¹ Preliminary. Source: Bureau of Mines

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Stocks of Finished Gasoline² on Hand in the United States, at End of Month In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	215.9	211.2	200.7	181.0	175.6	179.5	185.0	187.6	193.3	194.6	191.9	196.8
1983	210.0	209.2	185.4	185.4	188.0	185.4	192.3	187.4	191.8	189.5	198.4	187.8
1984	188.0	199.3	204.8	209.7	212.7	206.5	202.2	188.3	196.5	195.5	201.2	207.9
1985	200.9	191.8	188.2	184.2	183.4	188.5	194.4	190.4	189.7	182.3	185.6	192.4
1986	203.2	207.8	186.2	176.0	189.8	197.8	192.0	189.7	198.5	187.0	193.0	196.4
1987 ¹	211.7	209.6	208.1	203.4	197.7	194.5	190.8	189.9	193.4	184.1	190.2	191.1
1988 ¹	202.3	204.4	195.9	191.5	190.4	175.6	179.7	184.3	184.6	182.3	185.8	192.0
1989 ¹	207.8	205.7	191.1	190.6	185.8	180.4	192.2	184.2	188.0			

¹ Preliminary. ² Includes aviation. Source: Bureau of Mines

T.504

United States Crude Oil¹ Supply & Disposition

Yearly Average	- Field Production - Total Domestic Alaskan		Supply					Unaccounted for Crude Oil	Disposition Refinery Inputs Exports		Ending Stocks ²		
			Total	Imports SPR ⁴	Stock Withdrawal ³		Total				SPR ⁵	Other Primary	
	Other	SPR ⁴			Other	Million barrels							
		Thousands barrels PER DAY											
1984	8,879	1,722	3,426	197	3,229	195	4	185	12,044	181	796	451	345
1985	8,971	1,825	3,201	118	3,083	117	67	145	12,002	204	814	493	321
1986	8,680	1,867	4,178	48	4,130	50	28	139	12,716	154	843	512	331
1987	8,349	1,962	4,674	73	4,601	80	49	145	12,854	151	890	541	349
1988	8,140	2,017	5,107	51	5,055	52	- 51	196	13,246	155	890	560	330
1989 ⁶	7,658	1,871	5,839	60	5,778	54	50	181	13,411	130	440	580	360
Sept.	7,563	1,875	6,031	59	5,973	59	- 194	105	13,784	32	912	577	335
Oct.	7,462	1,877	6,178	37	6,141	37	36	- 127	13,358	61	914	578	336
Nov.	7,601	1,921	6,153	45	6,108	45	389	115	13,317	101	932	579	353

¹ Includes lease condensate. ² Stocks are totals as of end of period. ³ A negative number indicates an increase in stocks and a positive number indicates a decrease. ⁴ Strategic Petroleum Reserve. ⁵ Stocks of Alaskan crude oil in transit were included beginning in January 1981. Stock withdrawals are calculated using new basis levels. ⁶ Preliminary. Source: Energy Information Administration

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PETROLEUM

Crude Petroleum Refinery Operations Ratio¹ In Percent of Capacity

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	67	65	66	66	69	75	75	71	74	71	71	70	70
1983	68	65	66	70	72	75	75	74	78	73	75	70	72
1984	73	76	75	75	77	77	76	78	78	76	77	76	76
1985	74	74	74	76	78	79	81	78	77	79	80	81	78
1986	81	78	76	82	86	86	84	87	86	83	84	84	83
1987 ²	81	79	78	80	82	85	87	87	86	83	82	84	83
1988 ²	83	81	84	84	86	86	86	87	84	83	84	85	84
1989 ²	86	83	84	84	86	90	89	89	88				

¹ Based on the ratio of the daily avg. crude runs to stills to the rated capacity of refineries per day. ² Preliminary. Source: Bureau of Mines

T.496

Production of Major Refined Petroleum Products in Continental U.S. In Millions of Barrels

Year	As-phalt ²	Avia-tion Gasol.	Fuel Oil		Gas-o-line ⁴	Petro-Chemical Feedstocks	Special Naph-thas	Miscel. pdt's.	Jet Fuel	Kero-sene	Liquified Gases ⁷ (For Fuel)	Lubri-cants	Liquefied Gases ³		
			Dis-tillate	Resid-ual									Total	at L.P.G. ⁵	at L.R.G. ⁶
1983	135.7	9.2	896.5	310.9	2,323				373.2	40.0		53.8	599.2	479.6	119.6
1984	141.3	9.1	981.2	326.2	2,371				414.3	41.8		58.3	620.9	488.2	132.7
1985	146.3	9.3	980.9	322.0	2,352				433.9	34.5		53.1	622.0	479.3	142.6
1986	149.7	11.7	1,021.2	324.3	2,476				472.0	32.6		58.2	618.5	466.2	152.3
1987	158.4	9.1	996.6	323.2	2,506				490.1	28.7		60.9	638.2	474.5	163.7
1988 ¹	162.1	9.3	1,046.3	338.7	2,555				501.3	28.8		62.3	665.2	482.6	182.6

¹ Preliminary. ² 5.5 barrels = 1 short ton. ³ Includes ethane & ethylene. ⁴ Finished (includes aviation). ⁵ Gas processing plants. ⁶ Refineries. ⁷ Liquified refinery gases. Source: Bureau of Mines

T.490

Stocks of Petroleum & Products in the United States on January 1 In Millions of Barrels

Year	Crude Petro-leum	Strate-gic Reserve	Total	As-phalt ²	Avia-tion Gasol.	Fuel Oil		Finished Gasoline ⁶	Refined Petro-Chemical Feedstocks	Jet Fuel	Kero-sene	Liquified Gases ³	Lubri-cants	Road Oil	Wax ⁴	Unfinished Oils (Net) ⁵
						Dis-tillate	Resid-ual									
1983	643.6	293.8	628.3	15.9	2.3	178.6	66.2	196.8		36.8	10.4	94.0	12.5			158.1
1984	722.9	379.1	569.2	18.8	2.3	140.3	48.5	187.8		38.6	7.9	100.6	12.1			161.5
1985	795.9	450.5	620.6	17.2	2.7	161.1	53.0	207.9		42.0	11.9	100.8	12.7			139.8
1986	814.2	493.3	556.6	21.2	2.1	143.7	50.4	192.4		40.5	7.5	73.5	11.8			148.0
1987	842.8	511.6	609.4	17.7	2.2	155.1	47.4	196.4		49.7	8.4	102.7	14.2			140.4
1988	889.6	540.6	579.5	18.8	2.3	134.5	47.4	191.1		49.9	8.4	97.1	13.3			138.3
1989 ¹	889.9	559.5	561.6	20.8	2.1	123.5	44.6	192.0		43.8	7.3	97.3	13.3			145.8

¹ Preliminary. ² 5.5 bbls. = 1 s. ton. ³ Includes ethane & ethylene at plants & refineries. ⁴ 1 bbl. = 280 lbs. ⁵ And misc. products. ⁶ Includes aviation. Source: Bureau of Mines

T.493

Stocks of Crude Petroleum¹ in the United States at Beginning of Month In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	643.6	660.4	669.4	666.8	678.9	679.4	683.0	675.8	700.5	707.7	716.2	712.7
1984	722.9	733.1	727.4	728.2	742.5	763.5	766.6	771.8	764.1	756.3	779.8	786.9
1985	795.9	793.5	781.6	791.2	806.8	828.6	820.6	810.5	805.6	806.6	803.6	812.4
1986	814.2	826.1	827.1	837.8	836.6	828.5	828.4	845.2	837.7	844.2	851.4	848.6
1987 ²	842.8	848.7	853.0	853.0	850.5	857.0	854.8	853.8	864.4	871.1	891.5	902.2
1988 ²	889.6	888.2	892.0	898.6	904.4	905.7	909.1	900.7	885.3	883.2	895.6	895.7
1989 ²	889.9	894.8	896.6	892.5	907.4	915.7	902.8	906.4	916.2	912.2		

¹ Total gasoline-bearing in the U.S. ² Preliminary. Source: Bureau of Mines

T.501

U.S. Production of Residual Fuel Oil and Distillate Fuel Oils In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	102.1	83.8	87.7	93.3	104.8	101.2	104.5	103.1	107.0	108.1	105.8	106.0	1,207
1984	110.1	112.2	104.4	95.7	107.4	111.9	108.2	107.3	106.7	111.5	112.6	119.3	1,307
1985	112.7	99.2	100.1	102.1	107.9	100.4	104.7	103.4	102.0	118.3	121.1	131.1	1,303
1986	119.0	95.8	107.1	111.6	116.9	106.5	110.3	118.4	111.6	109.8	116.7	121.8	1,346
1987 ¹	114.5	95.4	100.8	101.5	104.7	106.6	111.7	111.2	109.5	113.7	118.9	131.5	1,320
1988 ¹	124.5	106.7	113.6	114.6	117.7	113.2	114.6	115.0	108.8	114.0	114.8	128.2	1,385
1989 ¹	121.6	104.4	113.1	111.0	114.1	112.8	114.8	118.0	114.1				

¹ Preliminary. Source: Bureau of Mines

T.505

Production¹ of Crude Petroleum in the United States In Millions of Barrels of 42 Gallons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	263.8	243.7	268.7	257.7	269.2	259.4	268.4	267.6	261.0	269.7	260.9	266.5	3,157
1983	269.6	245.2	269.7	263.3	267.6	260.0	267.7	269.1	263.5	271.9	263.1	260.3	3,171
1984	274.9	257.4	268.8	265.9	277.6	265.6	275.4	273.1	269.8	276.1	269.4	275.8	3,250
1985	270.9	252.7	281.9	271.3	283.1	270.7	277.4	272.9	268.6	278.1	267.1	279.9	3,275
1986	283.2	256.9	279.4	265.9	274.0	258.7	268.4	259.6	249.8	261.0	252.4	258.9	3,168
1987 ²	262.8	232.9	258.8	252.8	257.5	248.4	255.8	254.5	246.2	259.3	251.9	257.8	3,047
1988 ²	255.6	242.9	258.8	248.0	254.3	244.7	249.8	250.0	236.8	248.7	240.7	246.2	2,979
1989 ²	245.3	219.2	235.9	232.4	242.0	229.8	231.7	235.3	226.9				

¹ Represents oil transported from producing properties, plus that remaining on properties & consumed on leases. ² Preliminary. Source: Bureau of Mines

T.500

U.S. Foreign Trade³ of Petroleum and Products In Millions of Barrels (42 gallons)

Year	Exports		Imports				Year	Exports		Imports			
	Crude Oil	Refined Products	Crude & Unfin. Oils	Refined Products	Distillate Fuel Oil	Residual Fuel Oil		Crude Oil	Refined Products	Crude & Unfin. Oils	Refined Products	Distillate Fuel Oil	Residual Fuel Oil
1980	104.9	94.3	1,946.2	582.5	51.9	343.6	1985	74.5	209.9	1,308.6	540.3	73.1	186.3
1981	83.2	133.9	1,654.2	534.2	63.1	292.1	1986	56.2	229.3	1,642.7	628.0	90.3	244.2
1982	86.3	211.2	1,352.4	514.0	34.0	283.1	1987	55.0	223.0	1,837.3	599.4	93.2	206.1
1983	59.9	209.9	1,317.8	525.9	63.5	255.2	1988 ¹	56.7	241.0	2,021.6	686.8	110.4	235.9
1984	66.2	196.9	1,368.8	620.2	99.4	249.2	1989 ²	56.3	250.8	2,240.0	665.0	115.0	236.0

¹ Preliminary. ² Estimate. ³ Includes shipments to & from noncontiguous territories. Source: Energy Information Administration

Domestic First Purchase Price of Crude Petroleum at Wells¹ In Dollars per Barrel

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	25.93	26.06	26.05	25.93	26.00	26.09	26.11	26.02	25.97	25.92	25.44	25.05	25.88
1985	24.26	23.64	23.89	24.19	24.18	24.07	24.04	23.99	23.96	24.10	24.27	24.51	24.09
1986	23.12	17.65	12.62	10.68	10.75	10.68	9.25	9.77	11.09	11.00	11.05	11.73	12.51
1987	13.79	14.51	14.54	14.95	15.29	15.95	16.88	17.06	16.25	15.95	15.46	14.27	15.40
1988	13.64	13.43	12.96	13.92	14.12	13.59	12.38	12.22	11.63	10.62	10.31	11.99	12.58
1989 ²	13.79	14.23	15.63	17.01	16.75	16.40	16.32	15.01	15.57				

¹ Buyers posted prices. ² Preliminary. Source: Bureau of Labor Statistics Energy Inform. Administration

T.497

Volume of Trading of Crude Oil Futures in New York In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	108.7	130.7	121.5	106.2	136.4	134.5	154.9	200.4	111.2	243.3	174.7	217.7	1,840.3
1985	385.3	263.3	298.5	272.6	290.1	342.2	329.8	269.7	339.8	365.9	337.9	386.8	3,980.9
1986	520.1	490.9	560.0	691.4	677.0	612.7	860.5	701.6	666.7	986.4	604.4	941.8	8,313.5
1987	873.2	968.4	1,199	1,059	937.3	1,196	1,412	1,505	1,126	1,205	1,287	1,813	14,582
1988	1,626	1,336	1,809	1,352	1,205	1,507	1,754	1,219	1,956	2,040	1,609	1,450	18,859
1989	1,919	1,524	2,053	2,070	1,911	2,082	1,663	1,343	1,541	1,521	1,425	1,483	20,535

Source: N.Y. Mercantile Exchange

T.502c

PETROLEUM

Month-End Open Interest of Crude Oil Futures in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	23,168	27,650	28,142	26,647	23,970	28,635	37,349	32,245	32,236	37,613	39,896	49,201
1985	63,458	57,479	44,532	45,875	50,450	57,820	52,134	53,743	64,731	64,981	58,099	61,161
1986	66,522	64,007	72,083	92,863	98,292	102,404	131,234	97,455	100,805	114,505	100,041	121,248
1987	134,716	147,632	158,154	147,705	138,707	167,392	178,226	193,788	188,337	156,013	159,115	208,259
1988	201,833	198,951	196,192	180,557	174,306	192,860	166,719	182,877	235,823	195,360	198,923	185,218
1989	211,112	203,900	246,277	246,391	202,843	225,368	198,073	217,772	235,765	237,238	259,634	250,117

Source: N.Y. Mercantile Exchange

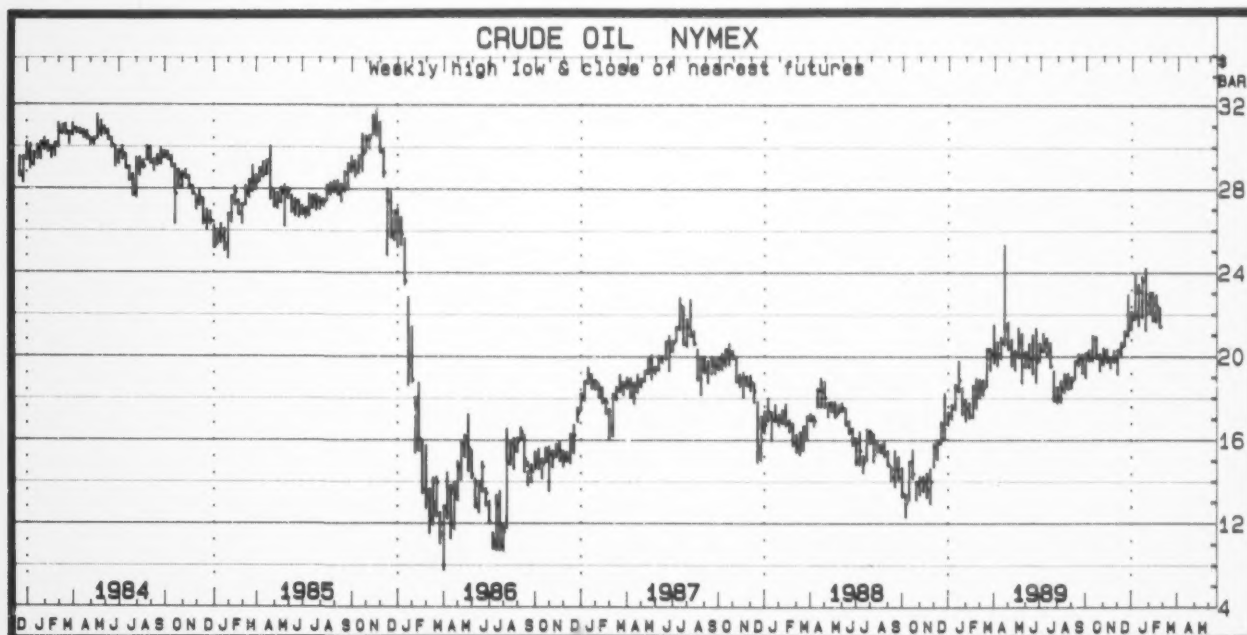
T.502b

High, Low & Closing Prices of December Crude Oil Futures in New York In Dollars Per Barrel

Year of Delivery	Year Prior to Delivery			Delivery Year												Life of Delivery Range
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.		
1985 High	29.50	27.93	27.20	25.95	26.50	27.60	28.60	26.65	26.25	26.49	27.68	28.65	30.40	31.82	31.82	
Low	26.99	26.56	25.91	23.90	25.00	25.90	26.55	26.10	24.58	24.93	25.60	26.12	27.84	29.93	23.90	
Close	27.66	26.72	25.91	25.35	25.45	27.42	26.77	26.50	25.50	25.66	27.40	28.63	30.38	31.72	—	
1986 High	25.60	26.45	25.66	22.05	19.23	15.85	14.85	15.30	13.80	12.70	15.92	16.52	15.85	15.83	26.45	
Low	23.80	24.74	22.18	19.15	15.05	11.69	11.20	13.00	12.70	10.40	11.28	13.90	13.52	14.68	10.40	
Close	25.33	24.74	22.21	19.19	15.44	11.69	12.82	13.56	12.82	11.28	15.85	14.93	15.27	15.08	—	
1987 High	—	—	—	18.15	18.10	18.08	18.14	18.94	20.31	21.39	21.65	19.59	20.52	19.83	21.65	
Low	—	—	—	16.68	16.40	16.42	17.33	17.79	18.75	19.99	18.10	18.54	19.30	18.05	16.40	
Close	—	—	—	18.03	16.58	17.97	17.77	18.80	20.05	20.71	19.43	19.48	19.96	18.93	—	
1988 High	—	18.15	18.00	16.90	16.72	16.78	18.35	18.07	18.00	16.80	16.57	15.28	14.96	14.38	18.35	
Low	—	17.94	14.99	15.55	15.40	15.13	16.31	16.80	15.65	15.00	15.21	13.00	12.13	13.23	12.13	
Close	—	17.94	15.97	16.14	15.55	16.65	17.71	17.91	15.68	16.64	15.23	13.02	13.58	13.60	—	
1989 High	—	15.15	15.85	17.75	16.56	18.50	18.71	17.95	18.62	19.05	18.69	19.88	20.67	20.38	20.67	
Low	—	12.70	14.84	15.66	15.52	16.51	16.78	16.98	16.88	17.85	17.50	18.52	19.32	19.47	12.70	
Close	—	15.05	15.36	15.78	16.44	17.44	17.80	17.63	18.31	18.11	18.62	19.87	19.94	20.07	—	
1990 High	18.85	18.85	19.70													
Low	18.32	18.02	18.56													
Close	18.47	18.49	19.60													

Source: N.Y. Mercantile Exchange

T.502a



Plastics

New technologies are producing plastics with higher resistance to temperature extremes, corrosion and chemicals, and with increased strength-to-weight ratios. These plastics are continuing to displace metals, glass, paper and wood, and have made plastics the largest category of materials used in the U.S. This trend was expected to continue through the mid-1990s, with overall demand for plastics growing at a 4 percent annual rate.

The boom in plastics demand that began in late 1987 continued through early 1989. Demand outstripped supply, and prices of some plastics increased by 20 percent. By mid-1989, the economy had softened, and prices retreated because of increased feedstock and resin capacity. Also dampening prices was the unstable political situation in China, the second-largest U.S. export market for plastics. U.S. plastics industry shipments in 1989 were estimated to have risen only 2 percent in constant dollars, following a gain of almost 6 percent in 1988.

Shipments by the plastics industry in 1989 were estimated at \$36.6 billion and were forecast to rise to \$38.1 billion in 1990. New plants coming on stream were expected to raise industry capacity by 7.5 percent in 1990, while output was forecast to increase by 5 percent.

The major types of plastics are thermosets, including polyurethane and polyester, and thermoplas-

tics, which include polycarbonate and polyvinyl chloride. Thermoplastics can be repeatedly reshaped by heating and cooling. Thermoset plastics cannot be reset by heat.

Plastics also are classified by price and technology. Commodity resins are produced in high-volume, low-cost runs. They include PVC and polystyrene. Engineering resins are produced in smaller quantities at higher cost, reflecting the R&D technology used in their production and the sophistication of their end uses. They include polycarbonate and a variety of plastic alloys and blends.

Engineering plastics are used in packaging, transportation equipment, electronics, medicine, and sporting goods. While they are a small segment of the plastics industry, demand was expected to grow at an 8-10 percent annual rate through 1995.

Spot prices for polyvinyl chloride fell to 26-28 cents a pound in October 1989 from a peak of 44 cents in August 1988. The downtrend was expected to push PVC prices to all-time lows in 1990. Residential construction (including PVC waste pipes) accounted for about 50 percent of total PVC demand, 10 percent of which went into vinyl siding.

A glut in high-density polyethylene supplies disappeared on October 23, 1989, when a massive explosion and fire destroyed a Phillips Petroleum plant in Pasadena, Texas, that accounted for 17 percent of U.S. HDPE capacity.

World Production of Plastics and Resins³ (Condensation, Polymerization, Etc.) In Thous. of Metric Tons

Year	Australia	Austria	Czechoslovakia	France	Germany		Italy	Japan	Netherlands	Poland	Belgium	Hungary	USSR	United Kingdom	United States
					East	West									
1976	407	404	580	1,769	679	7,088	2,266	4,952	1,723	559	824	186	3,216	2,556	13,261
1977	480	430	738	1,834	734	6,270	2,538	4,978	1,783	583	1,471	144	3,300	2,710	11,232
1978	522	434	810	1,885	762	6,703	2,466	5,882	1,962	596	1,682	209	3,516	2,621	12,380
1979	618	437	853	2,220	779	7,255	2,562	6,964	2,012	571	1,969	289	3,504	2,647	13,866
1980	709	487	894	2,052	859	6,710	2,464	6,422	1,975	667	1,835	324	3,636	2,260	12,418
1981	700	504	913	2,480	998	6,600	2,154	5,936	2,393	588	1,940	307	3,696	2,051	13,664
1982	715	454	961		989	6,275	2,142	5,986	2,502	600	2,023	322	4,057	1,966	13,009
1983	776	550	1,004	2,650	1,045	7,031	2,436	6,504	2,777	526	2,246	337	4,392	1,800	14,790
1984		613	1,034	2,694	1,056	7,409	2,718	7,424	2,641	600	2,374	377	4,500	1,900	15,505
1985 ¹		606	1,100	2,756	1,048	7,553	2,640	7,301	2,500	604	2,498	382	4,700	1,800	15,762
1986 ²		590	1,140	3,050	1,045	7,841	2,662	7,334		631	2,770	415	5,500	1,850	16,730

¹ Preliminary. ² Estimate. ³ Refers to production of thermoplastic & thermosetting resins & plastic materials obtained by chemical transformation of natural organic substances or by chemical synthesis. Source: United Nations T.506

Production of Important Synthetic Plastics & Resin Materials in the U.S. In Millions of Pounds

Year	Phenolic Resins	Polyethylene & Copolymers	Polypropylene	Polystyrene & Copolymers	Polyvinyl Chloride & Copolymers	Year	Phenolic Resins	Polyethylene & Copolymers	Polypropylene	Polystyrene & Copolymers	Polyvinyl Chloride & Copolymers
1980	1,745	11,720	3,699	5,540	5,485	1985	1,714	15,318	5,654	7,229	6,668
1981	1,688	12,604	4,008	5,915	5,618	1986	1,814	15,983	6,257	7,078	7,284
1982	1,398	12,548	3,515	5,609	5,397	1987	1,697	17,374	6,977	8,283	8,338
1983	1,460	13,890	4,457	6,254	6,256	1988 ¹	1,687	18,694	7,257	9,185	8,588
1984	1,656	14,621	5,216	6,857	6,828	1989 ²	N.A.	18,950	6,525	N.A.	8,600

Note: Data included in the table does not cover all Plastics production. Various types of Plastics production of lesser importance are not included because statistics are not available on a consistent basis. Also, many individual firms do not make their production figures known. ¹ Preliminary. ² Estimate. Sources: U.S. Tariff Commission, Bureau of Census T.507

PLASTICS

Average Producer Price Index of Plastic Materials in the United States (1982 = 100)¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Plastic Resins and Materials (066)													
1980	270.4	272.1	274.5	287.6	288.4	287.6	285.7	281.5	276.5	276.1	276.2	274.1	279.2
1981	274.7	276.1	279.4	285.1	287.9	290.0	295.9	297.5	296.8	299.5	293.2	294.2	289.2
1982	286.1	297.3	285.5	286.0	283.2	282.1	280.9	282.2	281.6	281.6	281.4	281.4	284.1
1983	283.8	283.1	282.1	285.4	288.0	289.1	291.3	293.7	302.6	299.1	297.9	301.5	291.5
1984	305.2	305.0	306.2	307.8	310.6	311.1	310.6	310.3	311.8	309.4	309.0	306.2	308.6
1985	305.2	306.9	306.3	306.1	305.4	307.1	307.5	306.4	305.1	300.7	300.3	299.3	304.7
1986	300.9	302.4	301.8	296.6	295.6	295.2	296.7	294.4	290.1	292.9	295.0	290.3	296.0
1987 ¹	102.6	102.4	103.2	106.3	107.0	109.7	112.8	113.1	114.2	116.8	117.4	117.7	110.3
1988	121.5	123.5	124.4	127.6	130.1	131.2	134.8	136.9	138.9	139.8	140.2	140.1	132.4
1989	140.3	141.1	140.6	140.7	139.8	138.0	137.2	132.0	129.2	126.9			
1990													
Thermoplastic Resins (0662)													
1981	100.2	101.0	102.6	104.6	105.8	106.6	109.3	110.1	109.7	110.5	107.2	107.6	106.3
1982	103.5	104.2	103.2	103.5	102.1	101.5	100.9	101.5	101.3	101.3	101.3	101.1	102.1
1983	102.4	102.1	101.5	103.4	104.7	105.2	106.3	107.3	111.6	109.6	108.8	110.6	106.1
1984	112.3	112.0	112.5	112.8	113.4	114.0	113.8	113.6	114.4	113.2	113.0	111.7	113.1
1985	111.1	112.0	111.7	111.5	111.3	111.9	111.9	111.4	110.6	108.3	108.1	107.8	110.6
1986	108.7	109.4	109.0	106.9	106.3	105.9	106.7	105.7	103.6	105.2	106.2	103.9	106.5
1987 ²	102.3	102.1	103.1	107.3	107.9	111.1	113.9	114.1	115.3	118.5	119.3	119.7	111.2
1988	124.4	126.7	127.8	131.1	133.7	134.9	139.0	141.2	143.5	144.3	144.4	144.2	136.3
1989	144.5	145.2	144.4	143.9	143.2	141.1	139.7	133.8	130.7	128.0			
1990													
PE Resin, Low, Film & Sheet (0662-0301)													
1980	257.2	260.9	N.A.	275.1	270.8	264.0	259.4	254.4	249.4	249.3	251.8	250.9	258.5
1981	251.5	251.2	252.5	263.0	263.0	263.7	280.7	N.A.	279.8	279.9	N.A.	247.3	263.3
1982	207.5	208.1	209.7	224.5	202.1	197.2	184.3	185.3	184.2	183.9	184.7	184.7	196.4
1983	204.9	205.2	193.9	215.4	215.4	N.A.	236.2	236.2	237.8	251.6	250.9	250.9	227.1
1984	272.1	272.6	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1
1985	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	206.8	206.8	206.8	255.8
1986	224.7	224.7	224.7	224.7	224.7	224.7	224.7	224.7	N.A.	224.0	222.5	224.5	224.4
1987 ¹	112.3	113.1	110.5	113.9	114.6	121.5	123.9	127.8	127.9	131.9	138.8	140.7	123.1
1988	145.9	150.3	153.8	157.9	171.4	172.0	178.3	192.3	201.3	203.5	202.7	201.6	177.6
1989	202.0	206.6	206.0	204.0	200.8	195.3	196.5	174.4	174.6				
1990													
Styrene Plastics Materials (0662-06)													
1987	96.0	96.1	101.3	108.3	110.0	116.8	119.6	115.4	117.6	116.6	119.5	119.7	111.4
1988	122.2	125.2	127.0	128.9	129.0	131.7	133.6	134.1	134.1	135.4	134.7	134.8	130.9
1989	135.3	136.3	134.4	135.8	135.1	133.1	130.2	119.7	119.2	118.5			
1990													
Thermosetting Resins (0663)													
1981	101.4	101.1	101.4	104.0	104.5	105.4	106.6	106.5	106.6	107.7	107.6	108.2	105.1
1982	108.0	107.9	108.1	108.1	108.0	108.6	108.7	108.8	108.9	108.8	108.9	109.2	108.4
1983	109.0	108.8	108.9	108.5	108.4	108.6	108.7	109.4	110.1	110.8	111.5	111.5	109.5
1984	112.2	112.7	113.1	113.3	116.1	114.6	114.4	114.6	114.5	114.4	114.2	114.2	114.0
1985	114.1	114.1	114.2	114.1	114.0	114.6	114.9	115.0	115.3	115.7	115.7	115.1	114.7
1986	114.9	115.0	115.1	113.7	113.5	114.0	114.0	113.4	113.3	112.7	112.8	112.7	113.8
1987 ²	101.5	101.4	101.9	102.2	103.6	105.5	110.6	111.1	111.8	111.8	111.3	111.0	107.0
1988	110.2	110.4	110.7	113.5	115.4	115.7	116.8	118.4	119.2	120.0	122.4	122.7	116.3
1989	122.4	124.0	124.9	127.9	126.6	126.5	128.4	126.9	125.1	124.8			
1990													
Phenolic Molding Compounds (0663-0201)													
1980	239.7	239.7	244.3	249.9	251.3	251.3	250.4	240.2	240.2	240.2	240.2	240.2	244.0
1981	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	254.2	254.2	254.2	254.2	254.2	254.2	254.2
1982	254.2	254.2	254.2	254.2	254.6	254.6	254.6	254.5	254.5	254.5	254.5	254.5	254.4
1983	249.6	245.7	245.7	245.7	245.7	245.7	245.7	245.9	246.0	246.0	245.6	245.7	246.1
1984	245.6	245.8	246.3	252.1	259.5	260.2	259.4	259.4	259.7	259.6	259.2	259.2	255.5
1985	259.2	259.2	259.2	259.2	259.2	259.2	259.2	268.1	268.1	268.1	268.1	268.1	262.9
1986	267.3	267.3	267.3	259.2	252.4	252.4	252.4	252.4	252.4	252.4	252.4	252.4	256.7
1987 ¹	100.8	99.2	99.2	101.1	112.0	112.1	112.1	114.8	114.8	114.8	114.8	114.8	109.2
1988	114.8	114.8	114.8	115.4	122.1	122.1	122.3	122.3	122.3	123.6	128.2	128.2	120.9
1989	128.7	132.6	132.4	132.2	132.2	132.2	132.2	132.2	132.2	132.2			

¹Data prior to 1987 are for 1967 = 100. ²Data prior to 1987 are for Dec. 1980 = 100. Source: Bureau of Labor Statistics

Platinum-Group Metals

World 1989 mine production of platinum outside the USSR was put at 2.87 million ounces by Johnson Matthey, up 45,000 ounces from 1988. Soviet sales, used as a proxy for Soviet output, were projected at 440,000 ounces, unchanged from 1988. Most Soviet platinum is a byproduct of nickel mining. Johnson Matthey noted that Soviet sales "may well be a balance between the availability of metal which can be spared from the USSR's domestic investment program and the need to generate hard currency." Mine production of palladium outside the USSR was unchanged at 1.55 million ounces, while Soviet sales fell to 1.73 million ounces from 1.77 million.

Small amounts of platinum-group metals (platinum, palladium, iridium, osmium, rhodium, and ruthenium) are recovered from copper refined in Utah and Texas. However, the only U.S. PGM mine is the Stillwater Complex in Montana, some 30 miles north of Yellowstone National Park. The mine yielded about 60,000 ounces of platinum and 195,000 ounces of palladium in 1989, according to Chevron Resources Company, which owns the mine with Manville Corp. It also yielded about 1,200 ounces of rhodium, a critical component in automobile catalysts. (Rhodium producer prices ranged from \$1,240 to \$1,285/oz. for the first eleven months of 1989. Prices then soared by \$800/oz. to an all-time high of over \$2,000/oz. when a processing delay at a new refinery in South Africa triggered panic buying.)

Development work on a second mine site near Stillwater, called East Boulder, continued in 1989. Production was expected to begin in 1991 or 1992. When both mines are operating, total annual PGM output should be about 500,000 ounces, with 3.5 ounces of palladium for each ounce of platinum. An on-site smelter was to go into operation in 1990. However, because Stillwater's concentrates require a complex refining process similar to one used for South African ores, the smelter matte (what is left after the slag is removed from the smelted ore) will be shipped to Belgium for toll refining. It was expected to be cost-effective to ship the smelter matte (containing about 2 percent PGM) by air, reducing the time from mining the ore to finished metal to three months from five.

Two new South African mines came on stream in 1989, and both Rustenburg and Impala announced plans to expand. South African platinum production rose by 4.8 percent in 1989 to 2.64 million ounces; palladium output rose to 1.14 million ounces from

1.11 million.

While industrial use grew in 1989, estimated world free-market platinum demand fell to 3.39 million ounces from 3.62 million in 1988; this reflected a decline in investment demand to 165,000 ounces from 630,000 ounces in 1988. In Japan, purchases of large bars (500 grams or more) fell to 20,000 ounces in 1989 from 300,000 in 1988. The stability of the yen price since July 1988 offered few trading opportunities. However, there was an improvement in sales of 1-ounce and smaller coins, when Japan's 15 percent commodity tax was abolished in April 1989.

Australia followed up on its Koala platinum legal tender bullion coin line by changing the design for the 1990 issues, which were introduced in November 1989 to meet Christmas orders. To create collector demand, total production of 1990 Koala coins was capped at 300,000 ounces of platinum, and GoldCorp Australia announced that the design would be changed annually. In the bullion coin market, the Koala competes with Canada's platinum Maple Leaf and the platinum Noble from the Isle of Man, as well as with gold bullion coins.

Free-market palladium demand in 1989 was estimated at 3.27 million ounces, down from 3.32 million. The difference between mine production and final demand was met by drawdowns in fabricator stocks and sales from dealer inventories.

Palladium prices were enhanced by the March 1989 claim by two Utah scientists that they had discovered "cold fusion" by running electricity through a platinum wire wrapped around a palladium bar in a jar of heavy water. The resulting fusion produced excess energy at room temperatures, according to its discoverers, and a lot of heat in the scientific community, as physicists attempted to replicate their results. Cash palladium rallied to \$185/oz. on the resulting euphoria, even though any results from the research would have been years away—if the process turned out to be more than a scientific curiosity.

Futures Markets

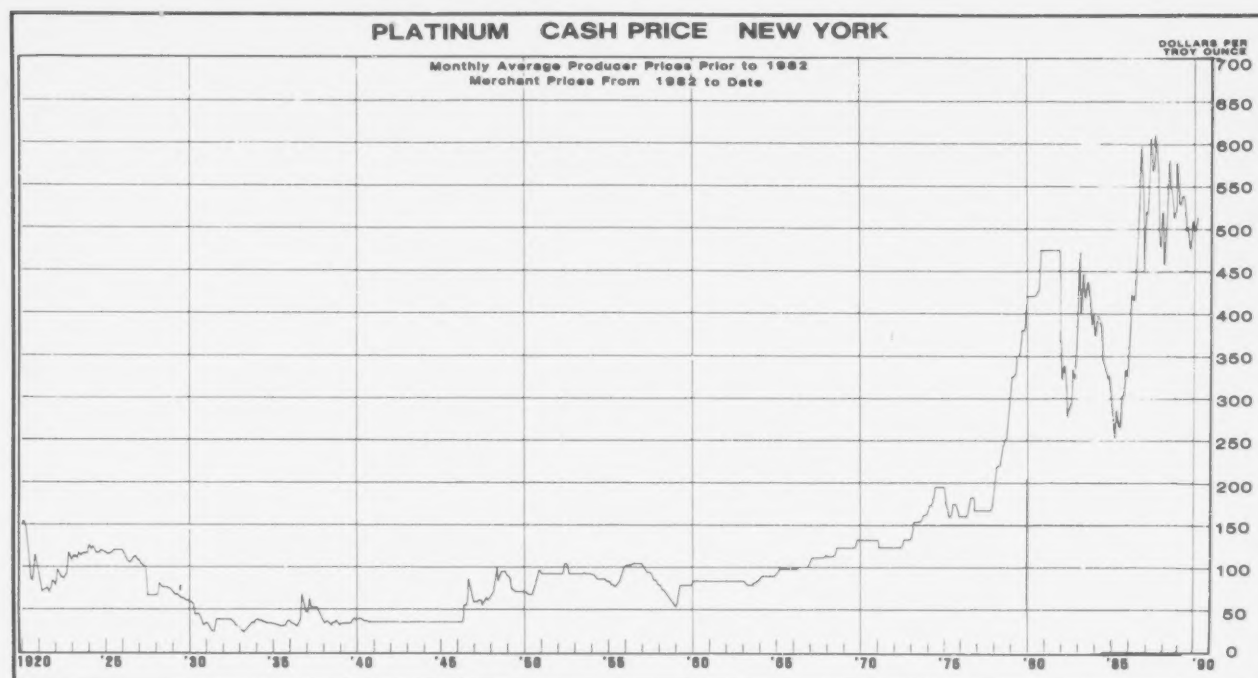
Platinum and palladium futures are traded on the New York Mercantile Exchange (NYMEX). In Japan, platinum is traded on the Tokyo Commodity Exchange (TCE). For 1990, the TCE planned to include a spot options contract and was also considering a palladium futures contract for introduction in October 1990.

World Mine Production of Platinum-Group Metals In Troy Ounces

Year	Australia	Zimbabwe	Finland	Canada	Colombia ²	Ethiopia	Japan	South Africa	USSR	United States	Yugoslavia	World Total ¹
1984	18,937	1,994	2,154	348,216	10,106	125	53,325	3,500,000	3,700,000	14,635	3,300	7,652,792
1985	18,358	1,576	2,250	337,088	11,650	150	65,919	3,700,000	3,800,000	N.A.	3,550	7,940,541
1986	17,457	1,961	6,944	391,917	14,368	150	68,011	3,960,000	3,850,000	N.A.	3,350	8,314,158
1987 ²	20,000	2,000	7,000	434,000	15,000	150	69,767	4,200,000	3,900,000	N.A.	3,350	8,700,000
1988 ¹				400,000				4,500,000	3,900,000			8,900,000

¹ Estimate. ² Preliminary. ³ Placer platinum. Source: Bureau of Mines

PLATINUM-GROUP METALS



Platinum-Group Metals Sold to Consuming Industries in the United States In Thousands of Troy Ounces⁴

Year	Automotive		Chemical		Electrical		Dental & Medical		Jewelry & Decorative		Petroleum		All Platinum-Group Metals			
	Platinum	Others ²	Platinum	Others ²	Platinum	Others ²	Platinum	Others ²	Platinum	Others ²	Platinum	Others ²	Platinum	Palladium	Other ² Metals	Total
1981	446.7	160.6	78.1	152.4	111.7	388.3	18.7	255.8	27.6	19.6	88.3	22.9	872.6	889.2	158.8	1,920.7
1982	477.8	144.8	63.6	200.6	90.0	348.4	22.8	312.1	16.0	12.7	21.6	21.7	780.1	926.3	166.8	1,873.3
1983	508.5	191.8	65.4	99.8	74.7	404.8	16.7	261.7	10.3	10.6	38.0	51.1	796.7	921.8	195.4	1,914.0
1984	569.0	232.3	73.5	108.7	99.2	452.8	18.6	349.0	9.5	11.0	28.0	92.7	876.2	1,150.5	173.1	2,199.8
1985	619.0	250.3	85.2	87.4	115.8	359.1	24.5	340.1	16.0	12.8	28.8	81.0	1,025.8	1,060.3	185.4	2,271.5
1986	625.0	232.0	77.7	75.4	103.5	356.3	20.8	268.9	11.3	9.8	30.6	61.0	981.0	889.9	209.4	2,080.3
1987	605.0	223.1	61.7	41.3	58.5	349.8	15.4	338.4	5.7	15.4	23.8	41.3	825.2	995.3	123.9	1,944.4
1988 ¹	19.3	7.2	3.2	45.0	3.5	14.4	.6	6.7	.4	.4	1.1	1.5	31.1	34.2	5.6	71.0
1989 ³													33.8	39.8	5.8	79.4

¹ Preliminary ² Palladium, iridium, osmium, rhodium, & ruthenium. ³ Estimate. ⁴ Beginning in 1988 data are in thousands of kilograms (one kilogram = 32.1507 troy ounces.) Source: Bureau of Mines T.512

Salient Statistics of Platinum and Allied Metals in the U.S. In Troy Ounces

Year	Net Import Reliance as a % of Apparent Consump.	Production Crude ⁵	Refinery		Stocks as of Dec. 31 ¹				Imports for Consumption	Value of Imports Mil. \$	Exports		
			New Metal	Secondary Metal	Platinum	Palladium	Other	Total			Platinum	Other Groups ³	Other ⁴
1981	83	7,318	5,607	391,637	401,389	398,933	117,856	918,178	2,849,617	800.3	391,194	258,745	213,426
1982	81	8,033	7,078	344,160	604,632	384,184	117,812	1,106,628	2,493,706	553.9	175,805	262,764	397,307
1983	89	6,257	5,884	303,165	433,457	412,178	97,513	943,148	3,218,022	752.8	184,599	261,188	782,967
1984	89	15,000	14,433	339,526	648,130	524,924	145,593	1,318,647	4,474,106	1,118.1	220,885	377,802	563,345
1985	92	N.A.	3,987	258,597	571,725	454,999	101,955	1,128,679	3,989,594	1,025.7	187,013	339,254	362,384
1986	90	N.A.	4,355	354,000	656,718	545,206	90,111	1,292,035	4,477,177	1,346.7	104,155	277,772	368,748
1987 ²	94	N.A.	6,000	165,000	611,000	558,005	65,982	1,234,987	3,806,547	1,240.1	90,208	349,221	276,727
1988 ²	93		5,000	200,000	592,795	477,020	72,017	1,141,832	3,900,000	1,347.9	92,552	396,322	272,871

¹ In hands of refiners, importers, & dealers. ² Preliminary. ³ Palladium, rhodium, iridium, osmium, ruthenium & osmium metals & balloys. ⁴ Ore & concentrates, waste, scrap & sweepings. ⁵ From crude platinum placers & byproduct platinum-group metals. Source: Bureau of Mines T.513

PLATINUM-GROUP METALS



Average Merchant's Prices of Platinum in New York In Dollars Per Troy Ounce

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1974	162.68	172.50	172.50	172.50	174.55	195.00	195.00	195.00	195.00	195.00	195.00	195.00	184.98
1975	195.00	180.53	175.00	163.06	160.00	160.00	162.73	175.00	175.00	172.17	160.00	160.00	169.87
1976	160.00	160.00	160.00	160.00	160.00	163.54	175.60	182.50	182.50	182.50	167.00	167.00	168.39
1977	167.00	167.00	167.00	167.00	167.00	167.00	167.00	167.00	167.00	167.00	167.65	174.81	167.71
1978 ¹	186.55	206.58	217.07	220.00	220.00	227.73	237.89	241.74	250.23	253.18	284.00	300.00	237.08
1979	303.41	325.00	325.00	327.38	350.00	350.00	350.00	357.83	380.00	380.00	380.00	393.33	351.83
1980	420.00	420.00	420.00	420.00	420.00	420.00	420.00	425.24	475.00	475.00	475.00	475.00	436.77
1981	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00
1982	369.26	361.95	322.46	338.95	314.43	278.26	286.90	290.41	334.98	324.58	346.65	370.95	328.32
1983	441.07	468.34	400.17	410.38	446.69	420.23	431.63	438.30	431.93	399.87	389.33	399.70	423.14
1984	375.11	391.38	398.47	395.17	388.95	386.31	345.55	336.03	327.36	324.65	328.45	309.11	358.83
1985	275.76	274.37	255.36	287.23	273.24	267.94	269.52	303.91	304.59	321.73	334.53	327.75	291.33
1986	362.77	377.74	412.48	422.93	415.52	431.23	436.50	526.52	597.92	578.50	524.65	480.14	463.91
1987	520.08	518.30	533.27	587.38	607.08	569.14	573.57	610.12	590.55	568.65	500.02	479.29	554.79
1988	494.14	458.64	496.49	527.73	548.91	581.32	548.51	532.80	513.16	527.35	577.74	567.36	531.18
1989 ²	528.69	532.66	538.26	539.96	517.20	498.81	503.16	485.20	479.29	485.48	508.73	507.24	510.39

¹ Prior to 1978 prices are for producer prices. ² Preliminary. Source: American Metal Market

T.511

PLATINUM-GROUP METALS

Month-End Open Interest of Platinum Futures in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	9,410	8,946	9,441	7,709	8,130	7,891	5,520	6,446	8,421	7,055	8,601	7,839
1982	6,278	7,524	8,686	8,302	10,326	9,337	11,137	12,853	14,141	13,002	15,547	15,620
1983	19,927	23,506	15,197	15,878	18,375	15,918	16,934	15,671	15,413	12,450	13,227	13,384
1984	12,692	13,912	13,805	15,244	15,852	17,254	15,775	15,766	17,288	14,826	14,753	15,525
1985	15,210	14,131	13,256	12,096	11,668	11,371	11,677	16,492	13,149	13,068	17,969	14,853
1986	18,163	20,490	19,938	15,768	16,582	18,748	18,749	25,939	23,364	19,152	18,204	17,707
1987	16,490	16,741	19,771	19,699	17,981	17,362	20,947	22,280	26,233	22,188	20,141	17,764
1988	20,135	19,217	17,534	15,535	23,062	21,102	18,396	17,737	21,333	18,106	25,030	19,919
1989	18,527	19,144	19,029	19,616	20,745	18,295	17,914	20,191	17,484	18,262	21,056	18,767

Source: N.Y. Mercantile Exchange

T.515

Volume of Trading of Platinum Futures in New York In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	36.5	29.7	56.1	36.7	30.8	44.7	37.9	39.1	63.9	35.4	33.2	46.6	490.5
1982	32.5	29.5	48.4	42.4	33.1	46.6	55.8	76.9	84.8	70.8	70.0	78.1	669.0
1983	126.0	117.0	107.9	71.9	106.2	115.4	75.9	77.0	79.2	61.5	57.2	57.9	1,035.4
1984	44.7	43.7	68.9	54.5	44.9	53.8	55.2	38.4	52.2	35.9	38.3	40.7	571.1
1985	41.0	26.2	53.5	48.8	43.1	42.2	40.3	98.1	82.7	68.6	64.8	84.0	693.3
1986	101.3	114.7	139.8	100.3	77.0	122.2	75.4	189.8	289.4	164.8	136.6	113.3	1,624.6
1987	117.2	85.7	134.1	149.3	110.8	116.5	87.1	133.2	122.7	127.2	88.6	89.2	1,361.5
1988	82.8	77.6	119.2	74.3	123.3	182.2	111.5	105.8	125.1	114.6	164.8	179.2	1,460.5
1989	113.6	96.6	148.5	107.3	111.6	126.9	60.8	86.8	85.1	56.4	99.8	88.1	1,190.5

Source: N.Y. Mercantile Exchange

T.516

High, Low & Closing Prices of April Platinum Futures in New York In Dollars per Ounce

Year of Delivery	Year Prior to Delivery												Delivery Year				Life of Delivery Range
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.		
1983 High	429.6	390.0	400.0	356.0	329.5	333.0	358.1	415.0	392.0	385.0	405.0	499.3	502.0	428.0	433.0	502.0	
Low	388.0	342.6	352.0	318.0	263.0	280.5	271.5	291.0	285.2	320.0	352.0	393.0	396.3	376.5	393.0	263.0	
Close	395.0	357.2	352.0	315.2	306.4	303.3	333.1	294.4	355.1	384.3	392.6	498.7	396.3	392.6	424.0	—	
1984 High	526.0	461.0	459.5	495.0	465.0	474.0	470.0	464.5	421.0	426.0	422.0	398.5	410.0	417.5	407.2	528.0	
Low	423.3	410.0	433.5	458.0	422.0	439.0	439.5	404.0	382.0	380.0	389.5	369.0	382.0	388.0	384.0	364.3	
Close	423.3	425.6	453.4	468.5	441.5	457.7	453.6	415.8	383.0	417.2	399.5	391.3	403.8	392.2	397.0	—	
1985 High	438.5	447.5	440.0	427.5	433.5	402.0	370.5	352.2	345.0	350.0	328.0	289.5	282.0	290.0	308.0	447.5	
Low	415.0	422.0	414.0	411.5	401.0	343.0	350.5	335.0	327.8	322.0	291.0	265.5	244.5	236.0	263.5	236.0	
Close	433.5	426.0	417.4	426.2	402.9	349.7	361.3	336.1	331.7	323.0	293.0	280.5	249.3	281.4	281.5	—	
1986 High	—	308.5	329.8	303.9	293.9	298.5	357.0	333.0	345.0	362.5	356.0	385.0	425.8	444.5	434.0	444.0	
Low	—	279.5	290.5	273.0	275.5	261.2	287.0	297.5	311.0	326.5	321.0	340.0	345.2	391.2	385.0	261.2	
Close	—	307.3	290.5	281.5	278.6	297.7	338.9	309.5	327.9	349.0	346.2	372.7	402.3	399.1	426.9	—	
1987 High	430.0	448.5	446.0	434.5	463.3	475.0	620.1	689.5	622.0	586.0	506.7	553.7	536.0	573.0	647.5	689.5	
Low	361.0	400.0	398.0	404.0	425.5	432.0	471.0	546.4	564.5	459.5	462.0	472.0	496.2	515.0	551.5	361.0	
Close	409.4	412.9	430.3	433.1	441.9	473.6	620.1	558.6	576.2	481.7	476.2	527.7	525.6	555.8	602.8	—	
1988 High	546.5	590.0	670.8	657.0	622.5	639.1	669.0	635.0	637.0	546.0	531.5	518.8	475.0	538.0	549.0	670.8	
Low	516.0	533.6	573.0	588.0	565.0	572.0	600.0	580.0	516.0	484.3	493.0	452.1	439.5	462.0	512.0	439.5	
Close	542.6	574.8	629.7	600.4	574.0	636.5	612.1	582.6	541.1	527.8	507.6	457.9	475.0	530.7	516.1	—	
1989 High	493.0	555.0	565.4	630.4	648.7	599.0	565.9	551.0	552.0	605.0	607.0	550.0	553.0	559.0	566.2	—	
Low	467.1	482.0	537.9	536.6	570.0	530.0	528.0	489.0	505.0	549.5	501.0	511.0	516.5	514.5	517.5	—	
Close	493.0	552.4	544.6	630.4	577.8	542.9	544.9	511.0	549.6	604.7	515.6	517.5	540.9	526.6	543.3	—	
1990 High	548.3	557.0	571.2	544.0	524.5	532.0	515.0	508.0	505.0	549.7	526.5	—	—	—	—	—	
Low	525.9	525.0	528.0	491.0	484.0	495.8	480.5	475.0	486.5	496.3	496.0	—	—	—	—	—	
Close	539.9	535.6	530.5	506.8	506.5	508.9	480.5	502.7	498.7	520.0	496.3	—	—	—	—	—	

Source: N.Y. Mercantile Exchange

T.514

Month-End Open Interest of Palladium Futures in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1987	6,459	6,503	6,778	7,707	7,711	6,150	7,422	8,678	7,112	7,271	6,855	5,728
1988	6,178	6,426	6,399	6,240	6,907	6,743	7,552	6,734	6,546	6,357	6,443	6,424
1989	6,403	6,964	6,778	9,598	9,466	8,960	7,805	7,380	6,924	6,877	7,436	6,237

Source: N.Y. Mercantile Exchange

PLATINUM-GROUP METALS



High, Low & Closing Prices of March Palladium Futures in New York In Dollars Per Ounce

Year of Delivery	Feb.	Mar.	Apr.	May	Year Prior to Delivery								Delivery Year			Life of Delivery Range
					June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.		
1989 High	—	123.25	123.10	126.50	132.00	128.50	123.50	123.00	123.50	127.50	145.25	144.50	150.25	155.00	155.00	
Low	—	114.90	116.45	117.00	120.95	118.15	118.50	116.00	117.50	121.00	124.25	129.25	138.75	142.50	114.90	
Close	—	121.20	118.70	125.25	121.60	121.00	120.05	117.95	122.00	126.70	129.00	138.45	144.05	150.65	—	
1990 High	137.55	163.75	176.00	156.00	153.00	154.00	140.75	145.25	143.60	147.50	145.25					
Low	129.00	135.00	155.65	141.40	142.00	140.00	131.00	134.00	136.50	130.00	134.75					
Close	137.55	163.75	155.65	142.15	151.35	141.75	134.10	143.05	136.65	140.15	135.50					

Source: N.Y. Mercantile Exchange

Average Dealer¹ Price of Palladium in the United States In Dollars Per Troy Ounce

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	134.38	112.18	117.82	110.42	102.90	94.76	83.61	85.86	85.50	79.08	72.13	69.51	95.68
1982	67.70	67.53	66.99	69.43	68.51	59.27	57.35	57.76	64.50	59.99	74.03	86.14	66.60
1983	116.05	124.33	99.55	114.67	130.60	128.66	143.83	147.65	152.21	145.35	147.71	160.69	134.28
1984	157.30	161.10	159.26	161.03	156.25	154.07	140.98	135.83	136.94	140.07	146.47	136.72	148.84
1985	120.87	127.88	114.45	114.77	108.67	99.15	94.79	102.49	97.25	101.55	101.32	94.50	106.48
1986	101.83	103.18	110.62	110.64	109.23	110.40	112.00	127.05	142.30	136.68	125.36	118.15	117.29
1987	124.13	121.32	122.74	136.58	146.55	140.00	141.34	143.32	137.93	132.72	113.42	121.99	131.84
1988	125.26	120.40	122.67	123.62	124.06	128.77	126.25	123.84	121.04	122.59	126.80	133.30	124.89
1989 ²	135	142	147	167	154	153	151	135	138	137	139	139	145

¹ Based on wholesale quantities, prompt delivery. ² Estimate. Source: American Metal Market

T.510

Pork Bellies

A change in the outlook for pork belly demand in late 1989 reversed a long price decline. The political upheaval in Eastern Europe raised hopes for greatly increased U.S. belly exports to that region. The full implications for the pork belly market were uncertain, but optimism prevailed.

Bacon is derived from pork bellies, which are sliced from the layer of meat and fat from the underside of the hog. A hog has two bellies, each weighing 8-18 pounds, depending on the animal's slaughter weight. Bellies typically account for about 12 percent of a hog's live weight and a larger percentage of the total cut-out value of all pork products. There is a strong domestic seasonality for bacon, with good retail demand in the summer when lighter foods are preferred. The market effects of this seasonality could be altered, if export demand becomes more pronounced.

There are no futures contracts between August and the following February; this can easily distort weekly continuation charts, as summer prices may have little relation to expectations six months hence.

Belly prices have generally been most sensitive to inventories in cold storage and to movement--net withdrawals or additions--at any given time. Typically, belly stocks are accumulated from November until June and are drawn out of storage during the summer. Futures prices are usually at a premium of 10 percent or more to cash prices in the Oct.-Dec. quarter, which tends to encourage storage.

The peak stock level in 1989 was the highest since 1971. The large supply of frozen bellies and a high rate of fresh belly production resulted in burdensome total supplies and the lowest summer prices in nearly 20 years. Low belly prices helped depress hog prices in mid-1989, as every \$1/cwt. decline in belly prices reduces the total value of the hog carcass by 14-18 cents/cwt.

Early in the third quarter of 1989, belly prices were averaging about \$9/cwt. below a year earlier, and then things changed. Rumors of large U.S. donations of pork bellies to Poland suggested a way to reduce domestic stocks. Also, it was believed that Eastern Europe would become a major importer of U.S. pork bellies. In late 1989, USDA said 22 million pounds of bellies would be sent to Poland as part of a food aid package. However, government purchasing of bellies for shipment moved slowly. Prices, having risen sharply, gave up some of their gains. Yugoslavia, meanwhile, bought a small quantity of U.S. bellies.

Domestic bacon demand has been hurt in recent years by consumer concerns about chemicals used in curing bacon and about the product's high fat content.

Futures Markets

Pork belly futures and options are traded on the Chicago Mercantile Exchange (CME).

United States Quarterly Sliced Bacon Production¹ In Millions of Pounds

Year	Retail	Commercial	Total	Year	Retail	Commercial	Total
1982	1,000.7	500.8	1,501.5	1984	1,038.0	693.6	1,731.6
I	246.3	120.9	367.2	I	253.6	176.4	430.0
II	247.2	128.0	375.3	II	246.8	162.2	409.0
III	273.5	129.2	402.6	III	268.8	166.4	435.2
IV	233.7	122.7	356.4	IV	268.8	188.6	457.4
1983	1,113.6	562.8	1,676.4	1985			1,672.5
I	248.6	127.7	376.2	1986			1,559.7
II	250.8	140.8	391.6	1987 ²			1,579.9
III	260.6	152.1	412.8	1988			
IV	353.6	142.2	495.7				

¹ Smoked, dried or cooked. Under Federal Inspection. ² Preliminary. Source: Agricultural Marketing Service, USDA

T.517a

U.S. Frozen Pork Belly Storage Stocks (In Thousand Pounds, as of First of the Month)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	70,201	69,635	67,800	85,444	98,163	106,869	96,967	68,616	34,410	21,867	42,186	72,127
1981	97,365	90,181	94,661	104,357	125,469	132,568	117,795	72,998	36,094	16,228	18,060	35,058
1982	54,639	46,167	41,855	66,061	—	—	72,593	—	—	7,558	—	—
1983	31,292	33,592	33,400	44,304	54,510	64,671	63,468	48,409	26,642	15,672	20,047	52,924
1984	78,648	71,568	78,169	95,009	112,205	127,527	115,034	85,630	43,626	22,321	24,048	38,333
1985	57,361	53,623	51,633	68,315	83,836	96,040	88,367	61,397	35,764	20,158	29,787	47,427
1986	51,314	47,633	51,218	62,508	68,325	65,895	61,547	40,333	20,797	12,941	17,022	24,528
1987	37,771	34,900	34,717	41,821	50,482	58,245	47,367	28,649	18,938	12,620	14,850	35,487
1988	62,089	62,996	67,035	90,347	102,543	111,484	103,401	73,747	42,623	31,054	49,550	93,254
1989 ¹	113,137	117,167	122,611	128,915	145,064	143,879	128,215	95,486	50,058	32,925	39,847	67,776
1990	85,026	79,463										

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.517

Weekly Pork Belly Storage Movement

1987 Week Ending	Stocks ¹ in Thousands of Pounds				1988 Week Ending	Stocks ¹ in Thousands of Pounds			
	In	Out	On Hand	Net Move- ment		In	Out	On Hand	Net Move- ment
Jan. 3	1,767	363	33,134	+ 1,404	Jan. 2	2,834	450	55,242	+ 2,384
10	1,419	1,357	33,196	+ 62	9	3,067	1,262	57,047	+ 1,805
17	796	1,115	32,877	- 319	16	2,452	1,200	58,298	+ 1,252
24	994	646	33,225	+ 348	23	951	1,042	58,207	- 91
31	231	2,599	30,857	- 2,368	30	208	3,395	55,020	- 3,187
Feb. 7	277	1,684	29,450	- 1,407	Feb. 6	162	2,099	53,083	- 1,937
14	809	884	29,375	- 75	13	1,241	623	53,700	+ 618
21	795	773	29,397	- 22	20	1,749	75	55,374	+ 1,674
28	545	432	29,510	- 113	27	1,539	51	56,862	+ 1,488
Mar. 7	442	294	29,658	+ 148	Mar. 5	4,730	—	61,592	+ 4,730
14	741	573	29,826	+ 168	12	4,296	144	65,744	+ 4,152
21	1,742	241	31,327	+ 1,501	19	4,330	10	70,064	+ 4,320
28	2,825	466	33,686	+ 2,359	26	5,153	172	75,105	+ 4,981
Apr. 4	2,810	218	36,278	+ 2,592	Apr. 2	4,416	96	79,365	+ 4,320
11	2,590	115	38,753	+ 2,475	9	3,125	242	82,255	+ 2,883
18	3,045	482	41,316	+ 2,563	16	2,467	150	84,557	+ 2,317
25	1,242	647	41,911	+ 595	23	1,450	155	85,860	+ 1,295
May 2	779	479	42,211	+ 300	30	2,804	89	88,395	+ 2,715
9	2,559	246	44,524	+ 2,313	May 7	4,237	8	92,640	+ 4,245
16	1,957	271	46,210	+ 1,686	14	3,470	111	95,999	+ 3,359
23	1,992	397	47,805	+ 1,595	21	1,850	546	97,303	+ 1,304
30	1,508	391	48,922	+ 1,117	28	745	846	97,202	- 101
June 6	537	626	48,833	- 89	June 4	507	1,078	95,631	- 571
13	206	2,534	46,505	- 2,328	11	625	1,592	95,664	- 967
20	199	3,158	43,546	- 2,959	18	138	1,877	93,925	- 1,730
27	164	2,333	41,377	- 2,169	25	723	2,025	92,623	- 1,302
July 4	384	2,701	39,060	- 2,317	July 2	1,542	2,651	91,514	- 1,109
11	124	3,224	35,960	- 3,100	9	1,097	3,343	89,268	- 2,246
18	205	3,482	32,683	- 3,277	16	510	6,306	83,472	- 5,796
25	137	3,851	28,969	- 3,714	23	246	7,986	75,732	- 7,740
Aug. 1	83	4,787	24,265	- 4,704	30	89	8,620	67,201	- 8,531
8	222	3,282	21,205	- 3,060	Aug. 6	127	8,562	58,766	- 8,435
15	70	2,622	18,653	- 2,552	13	225	6,500	52,491	- 6,275
22	440	2,240	16,853	- 1,800	20	83	6,652	45,922	- 6,569
29	409	2,090	15,172	- 1,681	27	44	6,187	39,779	- 6,143
Sept. 5	253	1,846	13,579	- 1,593	Sept. 3	480	4,214	36,045	- 3,734
12	50	1,249	12,380	- 1,199	10	696	4,080	32,661	- 3,384
19	114	1,162	11,332	- 1,048	17	3,529	4,518	28,663	- 3,999
26	590	1,732	10,190	- 1,142	24	1,478	4,053	26,087	- 2,575
Oct. 3	134	1,345	8,979	- 1,211	Oct. 1	1,536	2,765	24,858	- 1,229
10	15	625	8,369	- 610	8	1,877	1,491	25,244	+ 386
17	27	224	8,172	- 197	15	3,366	1,036	27,574	+ 2,330
24	1,076	170	9,078	+ 906	22	6,115	732	32,957	+ 5,383
31	1,514	238	10,354	+ 1,276	29	7,993	631	40,319	+ 7,632
Nov. 7	3,454	98	13,710	+ 3,356	Nov. 5	10,548	794	50,073	+ 9,754
14	4,856	249	18,313	+ 4,607	12	11,182	721	60,534	+ 10,461
21	5,964	153	24,124	+ 5,811	19	8,217	537	68,214	+ 7,680
28	5,082	55	29,151	+ 5,027	26	6,929	335	74,808	+ 6,594
Dec. 5	7,553	63	36,641	+ 7,490	Dec. 3	9,222	285	83,745	+ 8,937
12	7,133	64	43,710	+ 7,069	10	10,359	606	93,498	+ 9,753
19	5,039	238	48,511	+ 4,801	17	6,179	1,415	98,262	+ 4,764
26	4,423	76	52,858	+ 4,347	24	5,315	1,595	101,982	+ 3,720
					31	2,278	1,267	102,993	+ 1,011

¹ Total approved C.M. Merc. Exch. warehouses. ² Preliminary. Sources: U. S. Department of Agriculture; Chicago Mercantile Exchange T-518

PORK BELLIES



Month-End Open Interest of Pork Bellies Futures at Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	21,542	21,666	21,048	28,063	25,765	17,940	14,203	14,799	16,090	19,063	18,596	18,521
1983	19,654	16,510	17,563	16,850	16,870	17,242	12,162	12,268	16,042	16,976	20,242	20,247
1984	18,836	17,434	19,114	18,332	17,379	17,250	9,453	7,387	8,925	9,763	13,265	13,507
1985	14,452	14,784	12,561	12,580	11,355	10,731	8,452	6,590	6,914	7,904	9,134	8,103
1986	7,821	7,826	7,145	8,987	10,530	10,838	8,567	7,698	7,915	9,432	11,453	11,057
1987	10,911	9,964	11,939	15,813	12,506	11,253	11,549	6,882	8,829	9,593	10,554	12,386
1988	10,499	12,944	13,039	17,532	17,847	16,467	12,491	12,172	14,613	17,685	20,660	19,362
1989	20,488	21,778	20,851	24,772	26,079	23,218	14,583	11,964	11,386	13,668	13,805	13,471

Source: Chicago Mercantile Exchange

T 520

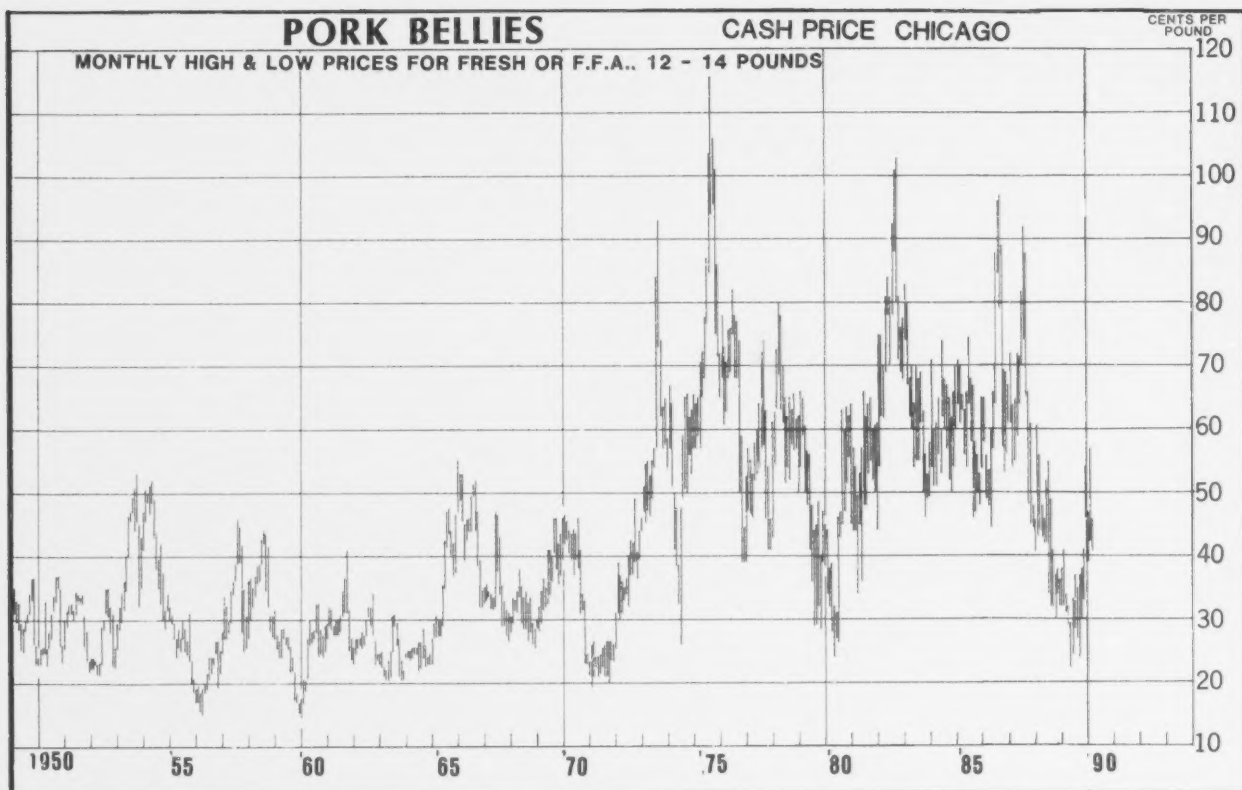
Volume of Trading of Pork Bellies Futures at Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	196,040	216,333	263,431	265,863	301,763	248,825	217,434	229,207	188,129	224,449	227,482	232,688	2,811,674
1983	276,556	229,198	207,543	225,034	226,617	227,522	218,813	169,113	132,894	154,642	159,982	175,363	2,403,277
1984	221,795	182,080	186,817	159,774	207,820	173,066	187,619	119,469	77,028	121,926	148,940	121,711	1,908,045
1985	173,488	137,334	133,509	148,489	149,809	135,319	136,026	89,784	77,326	99,291	85,377	91,634	1,457,386
1986	92,033	81,768	75,830	96,642	106,958	100,331	109,981	78,967	91,470	87,712	91,779	86,868	1,100,339
1987	104,134	95,108	92,707	118,107	112,112	120,598	118,996	89,564	60,670	66,423	53,903	64,688	1,097,010
1988	70,150	76,741	85,947	99,754	116,780	179,505	112,356	90,371	79,667	94,646	84,236	96,446	1,186,599
1989	107,577	89,922	84,768	90,353	145,975	152,207	119,733	91,200	75,155	106,389	141,983	105,714	1,310,976

Source: Chicago Mercantile Exchange

T 521

PORK BELLIES



High, Low & Closing Prices of May Pork Bellies Futures at Chicago In Cents per Pound

Year of Delivery		Year Prior to Delivery										Delivery Year					Life of Delivery Range
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1983	High	73.85	77.95	79.20	77.00	75.00	82.90	85.45	82.05	83.10	83.30	86.30	81.55	76.40	75.90	70.90	86.30
	Low	70.20	71.65	74.00	65.25	67.25	69.02	75.37	75.80	74.25	74.35	78.15	74.25	68.50	65.60	64.45	64.45
	Close	72.60	77.55	79.00	72.72	74.35	82.10	82.40	77.80	80.75	79.70	79.70	74.25	70.60	67.80	65.05	—
1984	High	65.40	65.95	65.90	61.90	64.75	71.55	66.80	64.40	65.60	67.40	71.30	68.10	71.07	74.10	70.65	74.10
	Low	61.25	62.80	60.00	56.00	54.70	61.50	59.50	58.35	60.32	60.40	62.12	59.25	60.55	65.50	64.35	54.70
	Close	64.90	64.72	61.00	57.15	61.90	65.37	59.37	64.22	62.30	63.62	67.27	60.70	69.22	65.82	65.42	—
1985	High	79.95	80.50	79.00	82.47	77.70	69.50	67.70	68.52	76.50	79.00	79.15	74.90	75.40	71.52	66.30	82.47
	Low	67.00	74.95	73.80	75.40	63.70	63.15	61.05	62.50	67.90	70.75	70.75	67.47	70.20	63.10	59.80	59.80
	Close	78.50	75.30	74.65	77.75	64.75	66.80	62.62	68.15	76.40	78.52	72.75	70.72	71.82	65.65	65.65	—
1986	High	75.60	75.25	74.57	75.27	70.00	64.35	64.85	67.52	66.65	67.80	66.90	63.45	61.67	58.55	65.75	75.60
	Low	69.00	70.55	69.80	69.70	59.50	57.05	57.25	62.35	60.00	63.00	62.35	54.40	54.37	49.65	57.65	49.65
	Close	75.35	73.70	74.12	70.30	62.95	59.65	64.85	63.65	66.45	64.90	63.50	55.85	55.87	58.55	59.85	—
1987	High	63.15	63.20	62.50	70.80	78.20	76.40	79.87	69.70	72.95	72.20	68.22	66.85	71.25	76.70	78.72	79.87
	Low	61.50	58.40	59.20	58.20	64.92	69.85	66.37	63.90	63.00	65.20	61.90	58.35	61.20	64.75	70.70	58.40
	Close	62.77	62.20	61.10	66.92	75.40	73.85	66.45	66.25	71.62	65.77	64.45	61.40	68.97	75.10	72.00	—
1988	High	56.25	59.95	75.60	64.85	66.55	67.75	62.50	60.65	58.75	56.00	61.40	60.20	57.55	58.05	55.27	75.60
	Low	54.40	51.00	57.80	59.00	58.50	60.95	56.45	54.40	54.45	51.10	52.27	52.92	52.10	51.10	50.90	50.90
	Close	54.50	59.45	60.20	59.00	66.55	61.90	57.10	56.90	55.70	52.35	55.75	53.27	56.12	51.35	54.02	—
1989	High	—	—	62.00	65.50	59.70	57.25	54.50	54.25	49.85	48.25	47.17	42.35	40.30	36.70	36.65	65.50
	Low	—	—	59.25	57.15	52.55	50.97	48.50	48.47	44.25	44.25	40.85	37.55	36.50	30.70	30.47	30.47
	Close	—	—	62.00	60.27	52.90	50.97	54.40	48.67	47.02	45.50	41.40	38.30	37.35	31.37	34.32	—
1990	High	54.40	49.90	54.50	53.35	49.80	46.70	50.80	55.47	63.75	58.05	—	—	—	—	—	—
	Low	50.60	47.10	46.85	48.05	41.15	39.50	44.40	46.60	54.85	48.25	—	—	—	—	—	—
	Close	51.70	47.25	48.40	51.80	41.55	45.70	48.90	55.47	57.30	50.65	—	—	—	—	—	—

Source: Chicago Mercantile Exchange

T.519

Potatoes

U.S. harvested potato area peaked in 1985 at 1.36 million acres, as did total production at 407 million cwt. Acreage and production trended irregularly lower during the second half of the 1980s, but generally exceeded levels in the first half of the decade. However, the value of total production rose, reaching a record \$2.14 billion in 1988, up 5 percent from the previous peak in 1984. Processing absorbs more than half of annual U.S. production.

U.S. potato production is classified by seasonal groups with fall (Sept.-Nov.) the major crop and winter (Jan.-Mar.) the smallest. The seasonal classifications generally overlap some, as do the marketing seasons. Spring production covers the Apr.-Jun. period, while summer includes Jul.-Sept. Of the latter, summer is more important.

Idaho is the nation's largest producer, followed by Washington state, with the two at times accounting for almost half of total fall output and more than 40 percent of annual production. Maine, Oregon, and sometimes North Dakota vie for third place. These five states accounted for almost 220 million cwt. of 1988's total fall crop of 314 million cwt.

Virtually every state has some potato production. Competition among the key producing states intensified during the 1980s, with aggressive marketing designed to make consumers more aware of a state's potato or variety. Marketing campaigns should intensify in the 1990s, especially in Maine.

Broad efforts are underway to improve yields, to enhance the potato's appearance for tablestock, and to improve processing (notably for the fast food industry). In 1989, the USDA issued a permit to a major U.S. chemical company for field testing of two genetically engineered potato varieties, which have greater resistance to viruses and could reduce the use of insecticides.

More emphasis is expected to be directed to boosting foreign demand for U.S. tablestock potatoes, with South America viewed as a potentially large market. Far Eastern demand for processed potatoes trended steadily higher during the past decade, led by Japan.

In the coming decade, there will be strong grower efforts to lift the potato's status in the eyes of the consumer. Higher yielding varieties and crops that are less susceptible to the vagaries of weather and plant disease are expected.

Potato utilization includes the categories of tablestock, processing, and seed retention. Conversion into french fries accounts for about half the total processed, followed by potato chip production. In 1988, these two products accounted for about 140 million cwt. of a total 191 million processed, and compared with direct tablestock consumption of 111 million cwt. In 1987 and 1988, there were some 380 processing plants scattered about the U.S., with the largest concentration in the eastern states.

Salient Statistics of Potatoes in the United States

Crop Year	Acreage		Yield Per Harv. Acre Cwt.	Total Production Mill. Cwt.	Farm Disposition Used Where Grown			Farm Price \$ Cwt.	Value of		Stocks on Jan. 1 ⁴ 1,000 Cwt.	Foreign Trade		Consumption		
	Planted — 1,000 Acres —	Har- vested — 1,000 Acres —			Seed & Feed	Shrinkage & Loss Million Cwt.	Sold ³		Prod. ² — Million \$ —	Sales		(Fresh) Dom. Exports — Ths. Cwt. —	Im- ports — Ths. Cwt. —	Per Capita — In Lbs. —	Fresh	Processed
1982	1,303	1,267	280	355.1	7.3	31.0	316.8	4.45	1,563	1,411	164,380	2,256	3,484	46.6	68.3	
1983	1,272	1,242	269	333.7	6.0	24.7	303.3	5.82	1,936	1,765	178,980	1,957	2,702	49.9	68.2	
1984	1,337	1,298	279	362.0	5.7	30.1	326.7	5.69	2,046	1,858	165,330	1,484	3,738	48.8	70.4	
1985	1,409	1,359	299	406.6	8.1	52.8	346.2	3.92	1,571	1,357	173,380	1,026	2,991	46.6	74.7	
1986	1,257	1,220	296	361.7	6.3	28.3	326.9	5.03	1,805	1,643	202,800	874	2,816	49.6	76.4	
1987	1,317	1,293	301	389.3	5.7	31.9	351.8	4.38	1,683	1,539	180,915	1,076	4,028	48.4	75.6	
1988 ¹	1,285	1,259	283	356.4	5.8	25.1	325.6	6.02	2,144	1,958	196,760	1,265	3,991	54.6	72.7	
1989 ¹	1,304	1,282	289	370.3							177,750					

Note: 60 pounds equals one bushel. ¹ Preliminary. ² Farm weight basis. Excludes canned & frozen potatoes. ³ For all purposes, including food, seed processing livestock feed. ⁴ Merchantable stocks held by growers & local dealers.
Source: National Agricultural Statistics Service, U.S.D.A.

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U.S. Cold Storage Stocks of All Frozen Potatoes (First of Month) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	767.3	800.1	879.9	899.8	958.0	986.6	1,015.3	823.2	603.8	637.2	775.2	817.4
1984	773.0	754.8	783.9	827.6	808.2	843.3	840.4	626.8	516.5	635.3	821.3	884.2
1985	892.3	900.0	943.4	1,003.3	1,023.6	1,081.6	1,058.4	828.2	735.4	861.4	1,014.2	1,020.2
1986	1,012.3	907.0	950.4	1,017.3	1,075.7	1,126.5	1,096.9	958.1	733.4	771.2	904.1	941.2
1987	894.1	786.7	795.9	856.6	886.7	962.9	1,003.3	816.4	675.5	774.2	947.5	966.1
1988	882.6	899.0	977.7	965.1	950.7	963.9	1,000.8	882.5	835.0	917.9	1,047.5	1,044.4
1989 ¹	988.7	927.4	944.3	947.3	969.9	986.7	961.5	739.9	611.3	734.2	878.7	937.8
1990 ¹	917.3	931.3										

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

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POTATOES

Potato Crop Production Estimates, Stocks & Disappearance in the U.S. In Millions of Cwt.

Year	Crop Production Estimates						Total Storage Stocks ²						Disappearance of Previous					
	Total Crop			Fall Crop			Following Year						Fall Crop Until					
	Oct. 1	Nov. 1	Dec.	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	
1980	296.9	296.9	301.0	260.7	260.7	172.0	147.0	122.1	97.7	72.7	44.5	84.1	110.0	135.0	160.0	186.0		
1981	329.9	329.9	333.7	287.1	287.1	193.6	164.4	137.8	111.8	82.3	50.8	93.6	121.0	149.0	175.0	204.0		
1982	350.0	350.0	349.3	306.9	308.9	206.5	179.0	150.2	122.5	90.1	57.3	92.3	121.0	149.0	178.0	209.0		
1983	329.8	329.8	325.7	292.7	292.7	192.5	165.3	138.9	112.7	81.7	50.4	90.7	117.0	143.0	169.0	200.1		
1984	358.8	358.8	361.6	310.0	310.0	201.4	173.4	144.8	118.4	86.4	52.5	130.0	159.0	187.0	217.0	251.0		
1985	—	400.4	404.1	—	346.1	235.5	202.8	171.5	138.7	104.5	65.4	139.0	171.0	203.0	238.0	277.0		
1986	—	352.3	352.3	—	307.5	209.4	180.9	154.5	128.7	95.1	59.8	96.8	124.0	150.0	176.0	209.0	250	
1987 ¹	—	361.5	—	—	342.7	225.9	196.8	167.3	138.8	105.9	70.0	110.0	—	166.0	195.0	220	262.0	
1988 ¹	—	352.1	—	—	309.9	206.4	177.3	151.1	124.5	92.6	59.4	101.0	130	155.0	180.0	213.0	245.0	
1989 ¹	—	367.3	—	—	322.7	201.4	173.4	—	—	—	—	115.0	143.0	—	—	—	—	

¹ Preliminary. ² Held by growers & local dealers in the fall producing areas. Source: Crop Reporting Board, U.S.D.A.

T.525

United States Potato Production by Seasonal Groups In Millions of Cwt.

Year	Win- ter	Spring			Summer		Fall								Total Fall
		Florida	Calif.	Total Spring	Va.	Total	Maine	Wisc.	Minn.	Colo.	No. Dak.	Wash.	Idaho	Oregon	
1980	2.4	3.6	8.8	17.1	1.5	17.2	25.0	16.0	9.9	11.0	15.7	43.9	79.8	19.7	267.2
1981	2.2	5.3	10.3	20.8	2.3	20.5	26.5	18.2	13.3	11.6	20.1	52.9	84.5	21.7	297.1
1982	2.3	5.7	9.6	21.0	2.5	22.8	27.0	22.6	11.5	12.8	17.3	52.8	91.8	21.1	309.1
1983	2.2	5.1	8.3	18.3	1.0	18.5	22.6	18.9	10.3	14.0	20.5	54.1	86.0	20.7	294.7
1984	2.6	6.7	11.1	24.0	1.5	22.7	21.4	21.4	13.8	17.2	20.6	56.9	86.6	23.5	312.7
1985	2.7	6.6	10.6	23.0	3.3	27.3	28.2	24.1	14.1	17.9	23.6	63.6	102.5	26.9	353.6
1986	3.0	7.0	7.6	19.9	1.1	20.7	21.9	20.1	13.7	18.8	21.6	62.0	90.2	23.2	318.2
1987	2.5	5.6	7.9	19.0	2.0	22.8	23.2	22.1	16.3	19.5	24.1	67.0	99.7	25.9	345.0
1988 ¹	2.6	6.8	7.5	20.1	2.0	20.2	22.0	20.0	12.1	19.0	15.5	63.3	102.6	20.7	305.6
1989 ¹	2.8	6.9	7.9	20.9	1.4	22.0	22.0	23.5	13.9	20.6	15.1	64.3	102.5	13.1	316.1
1990 ¹	2.4														

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

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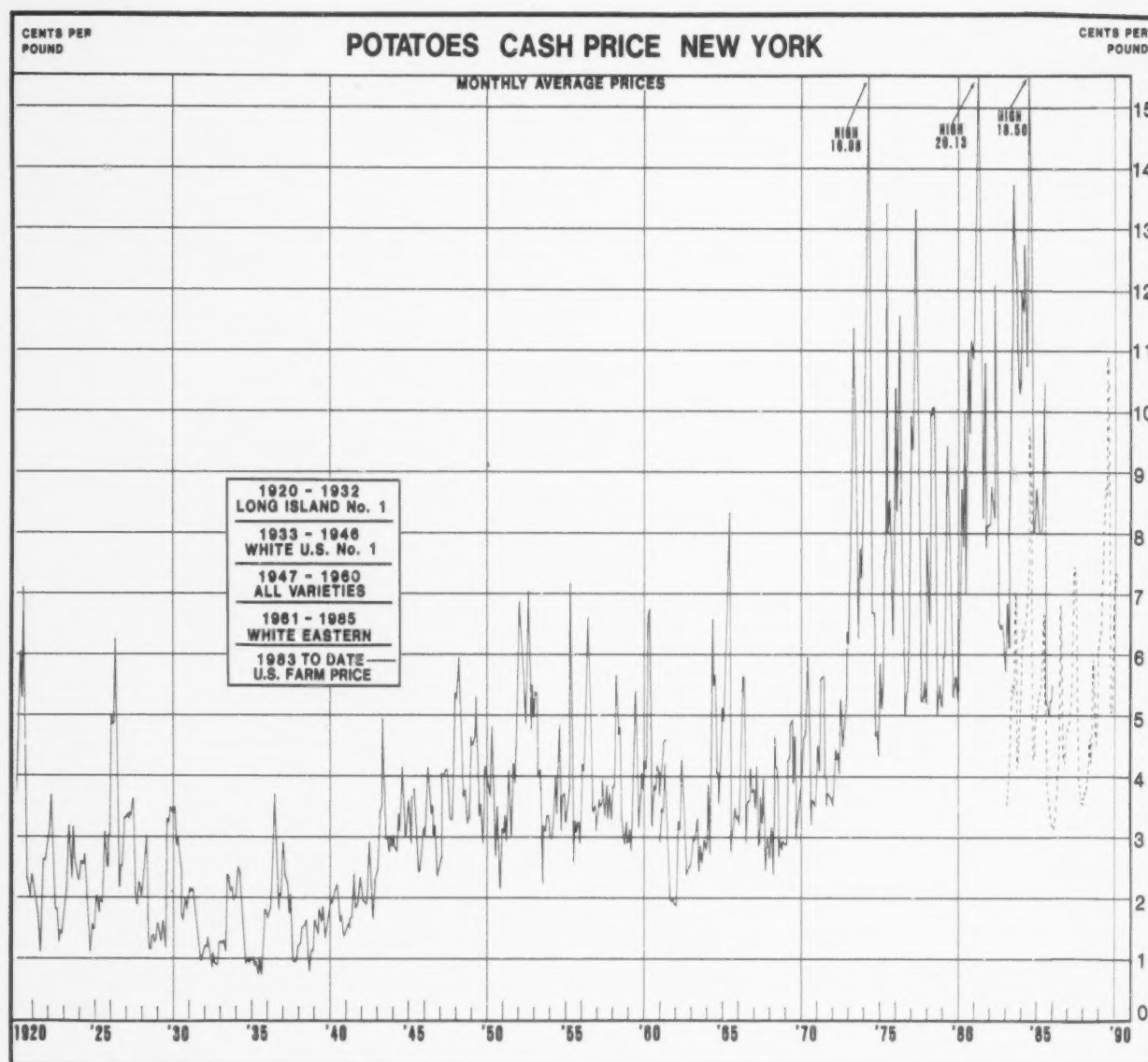
Utilization of Potatoes in the United States In Millions of Cwt.

Crop Year	Sales										Non-sales				
	For Processing						Other Sales				Used on Farms Where Grown	Shrinkage & Loss	Total Non-sales	Total	
	Table Stock	Chips, Shoestrings	For dehydration	Frozen French Fries	Other Frozen Pdt's	Canned Potatoes	Other Canned Pdt's ²	Starch & Flour	Live-stock Feed	Seed					Total Sales
1980	96.8	37.9	28.2	67.2	13.7	2.1	2.0	2.2	3.9	19.2	273.1	5.0	23.2	29.6	302.9
1981	112.0	39.3	29.9	79.8	16.8	2.5	1.7	2.3	3.6	20.4	308.3	4.5	26.3	32.3	340.6
1982-3	120.3	40.7	27.7	76.0	17.3	2.7	1.8	4.6	6.2	19.5	316.8	4.7	31.0	38.3	355.2
1983-4	107.3	43.3	26.8	74.4	19.7	2.1	2.0	3.0	3.8	20.9	303.3	4.6	24.7	30.6	333.9
1984-5	113.8	42.3	27.8	87.4	20.3	2.6	1.8	3.4	4.7	22.6	326.7	4.4	30.1	35.9	362.6
1985-6	125.3	42.2	30.0	94.7	17.9	3.0	1.6	3.5	8.1	20.0	346.2	5.1	52.8	60.9	407.1
1986-7	109.3	45.8	28.4	96.2	15.7	2.8	1.3	2.8	4.0	20.7	327.1	5.1	28.4	34.6	361.7
1987-8	129.1	40.6	30.8	101.4	18.3	3.0	1.6	2.2	3.8	21.0	351.8	4.5	31.9	37.6	389.3
1988-9 ¹	110.7	43.0	28.8	95.2	17.5	2.9	1.8	1.4	3.3	20.8	325.6	4.8	25.1	30.9	356.4

¹ Preliminary. ² Hash, stews, soups. ³ Includes 12.0 sold for livestock feed & starch under the U.S.D.A. diversion program. Source: Crop Reporting Board, U.S.D.A.

T.531

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U.S. Average Price Received by Farmers for Potatoes In Dollars Per Cwt.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg. ¹
1981	7.38	7.51	8.12	8.41	8.22	9.13	9.67	7.06	4.84	4.01	4.44	4.65	5.42
1982	4.71	4.78	5.03	5.59	6.21	7.11	6.52	5.80	4.25	3.78	2.73	3.71	4.45
1983	3.53	3.69	4.07	4.65	5.52	5.33	6.36	7.03	4.94	4.14	4.87	5.46	5.82
1984	6.43	6.29	6.55	6.69	7.04	7.52	9.72	8.75	4.87	4.26	4.60	4.90	5.69
1985	5.22	5.31	5.40	5.80	6.44	6.67	5.84	3.83	3.56	3.51	3.46	3.26	3.92
1986	3.12	3.35	3.50	3.99	4.39	4.79	6.91	5.68	4.28	4.20	4.63	4.78	5.03
1987	5.01	4.93	5.05	5.66	7.23	6.94	7.06	4.52	3.89	3.74	3.62	3.63	4.38
1988 ²	3.70	3.74	4.02	4.11	4.62	4.30	5.28	5.91	4.55	4.30	5.72	5.79	6.02
1989 ²	6.24	6.43	7.34	8.33	8.78	8.63	10.90	7.83	5.15	5.07	6.42	7.02	6.85
1990 ²	7.34												

¹ Annual weighted average by sales. ² Preliminary. Source: Statistical Reporting Service, U.S.D.A.

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United States Potatoes Processed¹, Eight States In Thousands of Cwt.

States	Storage Season	to Dec. 1	to Jan. 1	to Feb. 1	to Mar. 1	to Apr. 1	to May 1	Entire Season
Idaho and Malheur Co., Oregon	1983-4	15,755	20,445	24,785	29,540	35,155	40,640	53,810
	1984-5	19,000	24,310	29,200	34,010	39,510	44,650	57,410
	1985-6	17,830	22,980	26,660	32,170	37,910	43,240	55,220
	1986-7	13,200	17,980	21,910	27,070	33,360	38,970	55,470
	1987-8	18,260	23,320	28,680	34,340	40,380	46,440	64,495
	1988-9	18,740	24,270	29,420	34,720	41,360	48,080	64,425
	1989-90	22,200						
	1990-1							
Maine ²	1983-4	1,160	1,745	2,260	2,780	3,370	3,970	5,125
	1984-5	1,820	2,410	3,015	3,520	4,330	5,185	6,830
	1985-6	2,215	2,935	3,845	4,630	5,540	6,280	8,660
	1986-7	2,100	2,835	3,345	3,865	4,500	5,195	6,995
	1987-8	1,770	2,440	3,145	3,745	4,410	4,865	6,745
	1988-9	1,685	2,190	2,830	3,455	4,230	4,915	6,915
	1989-90	2,015						
	1990-1							
Wash. and other areas, Oregon	1983-4	16,245	19,920	23,690	28,250	33,280	37,455	45,800
	1984-5	20,745	24,690	29,345	33,560	38,815	43,380	51,670
	1985-6	21,725	25,665	29,450	34,450	39,990	45,110	57,430
	1986-7	21,530	25,510	28,530	33,595	39,610	44,865	56,910
	1987-8	22,265	25,950	30,790	35,800	40,900	44,925	58,085
	1988-9	19,200	23,455	27,280	31,960	37,575	41,795	51,555
	1989-90	23,635						
	1990-1							
Other States ³	1983-4	4,305	6,005	7,755	9,600	11,615	13,400	16,320
	1984-5	5,695	7,510	9,210	10,930	12,745	14,715	21,005
	1985-6	6,470	7,990	9,900	12,020	13,860	16,095	22,245
	1986-7	6,240	8,405	10,330	12,320	14,690	16,750	20,975
	1987-8	5,750	7,370	9,200	11,250	13,305	15,270	20,155
	1988-9	5,805	7,450	9,040	10,645	12,340	14,075	18,385
	1989-90	6,340						
	1990-1							
Total	1983-4	37,465	48,115	58,490	70,170	83,420	95,465	121,055
	1984-5	47,260	58,920	70,770	82,020	95,400	107,930	136,915
	1985-6	48,240	59,570	69,855	83,270	97,300	110,725	143,555
	1986-7	43,070	54,730	64,115	76,850	92,160	105,780	140,350
	1987-8	48,045	59,080	71,815	85,135	98,995	111,500	149,480
	1988-9	45,430	57,365	68,570	80,780	95,505	108,865	144,280
	1989-90	54,190	66,770					
	1990-1							

¹ Total quantity received and used for processing regardless of the state in which the potatoes were produced. Does not include quantities used for potato chips in Maine, Mich., Minn., N. Dak. or Wis. ² Includes Maine grown potatoes only. ³ Mich., Minn., N. Dak. and Wis.
Source: Crop Reporting Board, U.S.D.A.

T.524a

Potatoes U.S. Total Per Capita Utilization In Pounds

Year	Total	Fresh	Freezing	Chips ²	Dehydrating	Canning
1981	112.7	45.7	37.8	16.8	10.6	1.8
1982	114.9	46.6	39.1	17.2	10.1	1.9
1983	118.1	49.9	38.7	17.9	9.7	1.9
1984	119.2	48.8	40.5	18.1	10.0	1.8
1985	121.3	46.6	44.0	17.7	11.1	1.9
1986	126.0	49.6	45.9	18.2	10.5	1.8
1987	124.0	48.4	45.7	17.7	10.4	1.8
1988 ¹	127.3	54.6	43.9	17.0	10.0	1.8

¹ Preliminary. ² Includes shoestrings. Source: Economic Research Service, U.S.D.A.

Rapeseed (Canola)

World rapeseed (canola) production in 1989/90 was projected at 21.5 million tonnes, down 5 percent from the previous season. China remained the largest producer with a crop of 5.6 million tonnes, up 11 percent with better weather. The European Community's production was put at 4.9 million tonnes, 5 percent below the previous season. The fall in EC output was largely due to a projected 22 percent decline in France's crop to 1.8 million tonnes. West Germany's crop was forecast at 1.5 million tonnes, up 19 percent. India was expected to produce 3.5 million tonnes, down 17 percent.

A major development was the 23 percent decline in Canada's production to 3.2 million tonnes. Acreage was 20 percent below the previous season, and hot summer temperatures cut yields. Poland's crop was estimated at 1.5 million tonnes, 25 percent above a year earlier. The USSR's production was projected at 560,000 tonnes. The Soviet government announced steps to raise future production. U.S. rapeseed area has risen to about 200,000 acres.

World exports in 1989/90 were put at 4.0 million tonnes, 7 percent less than the previous season. Shipments by Canada, the largest exporter, were projected at 1.8 million tonnes, down 8 percent. Poland's shipments were expected to expand by 60 percent to 650,000 tonnes. The EC remained a net importer. Japan, the largest net importer, was projected to purchase 1.6 million tonnes, down 6 percent. Japan buys mainly from Canada. Mexico was expected to import 237,000 tonnes, and the U.S. 50,000 tonnes.

The world rapeseed crush was projected at 20.1 million tonnes, down 1 percent from a year earlier. The major processor was the EC, followed by China. With smaller production, world ending stocks of rapeseed were expected to fall by 35 percent to just under one million tonnes.

World rapeseed meal production in 1989/90 was estimated at 12.1 million tonnes, 1 percent less than a year earlier. China was the leading meal

producer, followed closely by the EC. World meal exports were projected at 1.8 million tonnes, down marginally from the previous season. Major exporters included the EC, China, and Canada. Among the large importers were Japan, South Korea, and the U.S. Global consumption of rapeseed meal was put at 12.4 million tonnes, or 1 percent lower. The largest meal users were the EC, followed by China, India, and Japan. Projected ending stocks of rapeseed meal were unchanged at 330,000 tonnes.

World rape oil production was estimated at 7.5 million tonnes, down 1 percent. Rape oil now ranks fourth in world production, behind soyoil, palm oil, and sunoil, and makes up 13 percent of world vegetable and marine oil production. The EC was the largest rape oil producer, with output estimated at 2.1 million tonnes. The trend is toward production of low erucic acid rapeseed, which can be used more extensively for human consumption. Most of the EC is switching to low erucic rapeseed, and by 1991/92 the Community will pay crushing subsidies only for these varieties.

China's rape oil output was expected to decline by 56 percent to 100,000 tonnes. The U.S. continued to be a major buyer of rape oil, with purchases forecast at 200,000 tonnes. Other producers of rapeseed oil included India, Japan, and Canada.

World rape oil exports were put at 1.7 million tonnes, 6 percent below the previous season. West Germany, a major processor, was the largest exporter, with projected shipments of 600,000 tonnes. Canada and other EC countries were also leading exporters. The major users of rape oil were the EC, China, and India. In the U.S., consumption was expected to total 220,000 tonnes. Projected world ending stocks of rape oil were 420,000 tonnes, down 5 percent.

Futures Market

Canola futures are traded on the Winnipeg Commodity Exchange (WCE).

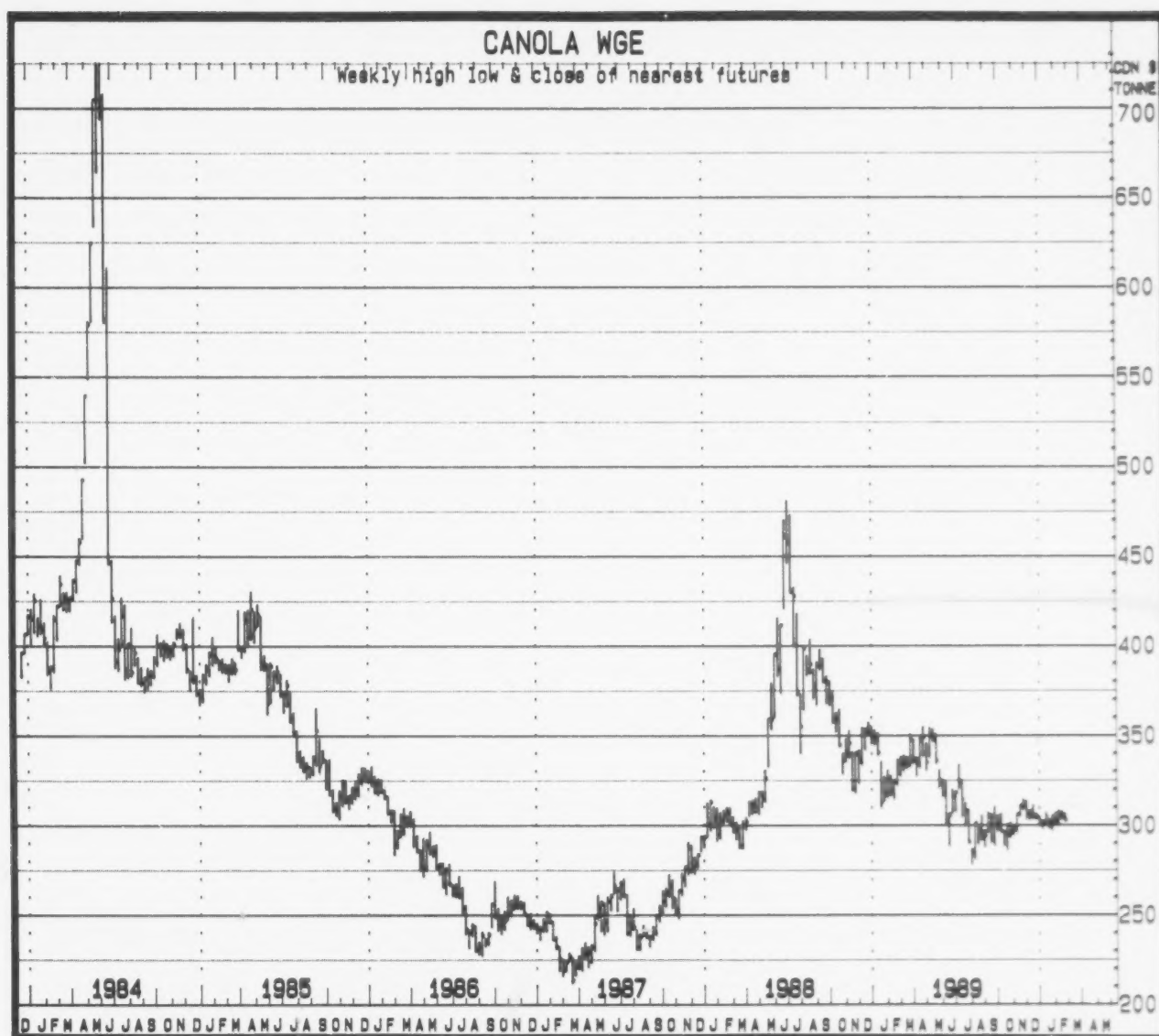
World Production of Rapeseed (In Thousands of Metric Tons)

Year ²	Canada	China	Czechoslovakia	Denmark	France	East Germany	West Germany	India	United Kingdom	Bangladesh	Pakistan	Poland	Sweden	Yugoslavia	World Total
1976	1,749			90	561							980	279		
1977	1,973	1,180	162	77	388	308	282	1,650	142	134	236	708	236	40	7,890
1978	3,497	1,868	166	91	568	318	331	1,860	155	137	248	691	289	73	10,721
1979	3,411	2,402	80	150	510	201	321	1,428	198	118	247	233	264	93	10,080
1980	2,484	2,384	214	225	1,103	277	377	2,002	300	122	252	572	285	68	11,104
1981	1,849	4,065	200	290	990	284	363	2,382	325	123	238	496	282	65	12,345
1982	2,225	5,656	178	335	1,147	307	535	2,207	580	120	246	433	320	79	14,804
1983	2,609	4,287	314	309	906	260	599	2,608	565	131	217	554	318	103	14,259
1984	3,412	4,205	300	474	1,305	305	662	3,073	925	140	234	911	327	124	16,935
1985	3,498	5,607	285	544	1,340	381	803	2,681	895	261	250	1,073	320	126	18,699
1986	3,787	5,881	306	618	1,071	370	969	2,635	940	229	217	1,298	321	131	19,550
1987	3,846	6,610	337	556	2,645	400	1,265	3,100	1,353	222	204	1,192	250	68	23,220
1988 ¹	4,310	5,040	380	528	2,302	420	1,216	4,200	1,040	200	243	1,200	248	62	22,510
1989 ³	3,060	5,600	359	630	1,800	380	1,452	3,500	969	210	260	1,500	323		21,450

¹ Preliminary. ² Harvest generally occurs in the first half of the calendar year given in all major producing countries except Canada.

³ Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.533



World Supply & Distribution of Rapeseed & Products In Thousands of Metric Tons

Crop Year	Rapeseed					Rapeseed Meal					Rapeseed Oil				
	Pro-duction	Exports	Imports	Crush	Ending Stocks	Pro-duction	Exports	Imports	Con-sumption	Ending Stocks	Pro-duction	Exports	Imports	Con-sumption	Ending Stocks
1979-80	10,081	2,102	2,403	8,714	1,708	5,206	520	640	5,316	149	3,365	643	571	3,295	159
1980-81	11,104	2,305	2,366	10,477	1,489	6,297	808	636	6,075	199	3,933	814	756	3,914	210
1981-82	12,345	2,142	2,216	11,959	911	7,331	845	683	7,182	186	4,383	824	775	4,404	140
1982-83	14,804	2,469	2,540	13,826	740	8,449	768	871	8,500	238	4,991	841	790	4,925	155
1983-84	14,263	2,537	2,704	13,312	647	8,130	1,198	1,303	8,206	267	4,856	984	980	4,827	180
1984-85	16,935	3,153	3,291	15,369	1,033	9,419	1,463	1,451	9,454	220	5,602	1,298	1,199	5,497	186
1985-86	18,699	3,632	3,643	16,986	1,267	10,260	1,823	1,734	10,109	282	6,233	1,313	1,203	5,978	331
1986-87	19,550	4,577	4,923	18,439	1,037	11,112	1,692	2,225	11,568	359	6,849	1,662	1,409	6,540	387
1987-88	23,220	4,525	4,388	20,864	1,223	12,615	1,921	1,980	12,559	474	7,685	1,850	1,495	7,157	560
1988-89 ¹	22,510	4,300	4,390	20,290	1,520	12,250	1,980	2,080	12,510	350	7,550	1,860	1,610	7,430	430
1989-90 ²	21,450	4,070	4,040	20,130	890	12,140	1,900	2,110	12,370	330	7,470	1,750	1,540	7,300	400

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T 534a

RAPESEED

Wholesale Price of Rapeseed Oil, Refined (Denatured), in Tanks at N.Y. In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1978	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
1979	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
1980	47.0	47.0	47.0	47.0	47.0	47.0	47.0	46.0	46.0	46.0	46.0	46.0	46.6
1981	56.4	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	58.8
1982	57.0	55.0	56.8	57.5	56.0	56.0	56.0	56.0	55.7	55.3	55.3	55.3	50.0
1983	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3
1984	55.3	55.3	55.3	55.3	55.5	55.5	55.2	55.2	55.2	55.2	55.2	55.2	55.3
1985	55.2	55.2	55.2	N.A.	N.A.	68.3	67.9	64.0	62.5	62.5	62.5	60.5	61.4
1986	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.5	60.5	60.5	60.5	60.1
1987	60.50	62.00	62.50	62.50	64.25	69.50	69.50	65.00	63.50	63.50	63.50	63.50	64.15
1988	63.56	63.50	63.50	63.50	63.50	63.50	63.50	63.50	63.50	64.63	66.25	70.00	64.37
1989	70.00	70.00	80.25	80.25	80.25	80.75	80.25	80.25	80.25				

Source: Economic Research Service, U.S.D.A.

T 534

Month-End Open Interest of Rapeseed Futures in Winnipeg In 20-Tonne Units

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1979	15,288	15,164	16,338	15,593	12,993	14,209	12,950	13,596	15,001	21,300	21,827	21,966
1980	15,718	17,516	13,392	14,285	17,722	17,254	17,126	17,108	18,827	22,036	21,911	20,504
1981	15,376	15,326	18,028	18,764	18,000	15,332	14,948	15,316	15,755	16,064	16,260	12,911
1982	13,532	14,970	9,952	12,230	15,997	11,554	12,623	16,948	13,904	15,503	17,992	20,555
1983	16,288	17,964	18,266	16,681	15,327	13,834	18,249	22,681	20,481	18,778	18,302	17,554
1984	14,170	16,807	13,980	13,743	15,220	14,025	14,348	15,822	17,967	15,893	18,046	19,361
1985	20,883	22,483	22,144	19,666	19,617	16,639	18,019	18,962	13,924	15,894	15,213	18,832
1986	15,083	21,017	19,412	21,161	23,154	17,457	17,478	24,836	22,087	32,220	28,293	27,989
1987	27,324	36,769	33,374	31,589	28,664	29,409	23,210	23,937	27,953	23,857	21,953	29,265
1988	30,901	34,534	32,538	34,064	33,518	32,020	29,639	28,000	26,751	31,230	26,380	28,779
1989	22,024	20,428	21,336	25,419	21,985	22,524	22,268	20,894	17,721	24,718	21,690	20,977

Source: Winnipeg Commodity Exchange

T 535

High, Low & Closing Prices of June Rapeseed Futures in Winnipeg In Dollars per Tonne

Year of Delivery	Year Prior to Delivery										Delivery Year						Life of Delivery Range
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June		
1983 High	—	—	—	—	361.0	366.3	345.5	349.1	340.0	335.9	329.0	321.0	329.3	328.1	308.5	366.3	
Low	—	—	—	—	346.0	332.0	332.6	339.6	322.3	323.1	311.5	311.8	311.0	309.5	292.8	292.8	
Close	—	—	—	—	354.2	337.0	342.5	340.3	325.6	329.1	311.7	316.0	324.7	309.9	297.2	—	
1984 High	—	—	—	359.5	434.0	467.4	452.5	435.2	424.5	431.4	412.0	426.5	502.2	724.0	724.0	724.0	
Low	—	—	—	330.0	364.5	415.5	409.0	406.1	397.3	406.5	382.9	403.0	426.0	507.5	577.0	330.0	
Close	—	—	—	350.5	423.6	447.5	409.7	407.8	421.5	410.2	403.5	426.5	502.2	704.0	577.0	—	
1985 High	—	—	—	443.9	434.5	417.5	424.1	427.9	417.5	408.8	404.5	402.5	429.2	422.0	389.7	443.9	
Low	—	—	—	409.5	413.5	406.5	414.9	415.3	389.8	388.0	395.5	391.4	393.2	361.5	379.0	361.5	
Close	—	—	—	413.0	413.7	416.5	417.7	416.8	390.5	397.4	397.4	397.5	408.6	367.0	381.9	—	
1986 High	422.5	424.0	409.5	400.4	370.0	357.0	351.5	315.5	347.3	346.7	329.8	316.7	306.5	295.0	277.5	424.0	
Low	421.5	402.5	388.0	364.5	348.0	342.5	328.4	325.5	330.7	328.6	296.1	298.8	271.0	274.0	261.3	261.3	
Close	421.5	403.2	388.0	368.5	352.8	342.5	328.4	333.6	342.2	329.5	300.6	305.7	291.5	275.8	267.7	—	
1987 High	—	—	—	290.7	270.0	284.0	277.0	278.0	269.4	260.5	253.7	234.0	233.4	259.9	272.7	290.7	
Low	—	—	—	290.2	254.0	255.0	258.5	266.8	256.5	251.0	224.1	216.0	218.8	229.1	240.7	216.0	
Close	—	—	—	270.2	258.6	279.8	270.8	268.6	258.1	253.8	226.1	221.5	229.7	245.0	265.7	—	
1988 High	—	—	—	285.0	262.5	273.6	284.0	300.4	307.0	323.5	309.9	303.4	317.8	378.3	431.0	431.0	
Low	—	—	—	257.0	253.0	254.8	268.7	265.3	284.5	298.0	298.0	288.0	305.3	310.0	371.3	253.0	
Close	—	—	—	265.2	257.3	270.5	269.6	292.8	306.2	300.2	301.7	301.6	317.6	376.2	431.0	—	
1989 High	339.0	402.4	490.0	480.0	426.0	424.0	392.7	376.5	367.5	367.0	345.6	351.0	354.0	353.3	323.0	490.0	
Low	322.2	338.0	397.0	380.0	393.5	387.5	355.5	339.3	344.5	323.8	323.6	334.5	327.5	316.2	288.7	288.7	
Close	339.0	397.0	470.0	391.0	407.5	389.5	364.5	345.8	362.5	336.5	345.2	336.3	334.5	318.5	307.0	—	
1990 High	—	—	—	334.5	339.2	336.8	329.0	331.0	322.5								
Low	—	—	—	315.0	314.0	321.8	313.0	315.2	315.7								
Close	—	—	—	315.0	331.5	325.3	320.4	321.1	317.4								

Source: Winnipeg Commodity Exchange

T 536

Rayon and Other Synthetic Fibers

Worldwide Cellulosic Fiber Production In Thousands of Metric Tons

Year	Austria	Brazil	China	Finland	Germany East	Germany West	India	Japan	Poland	Romania	Taiwan	Un. Kingdom	United States	USSR	Yugoslavia	Total
1980	115.9	51.3	170.0	47.8	168.5	111.2	132.4	397.3	86.4	63.5	78.3	146.0	365.6	650.0	73.0	3,242
1981	123.5	46.3	185.0	46.6	169.0	115.0	150.4	392.2	63.9	64.6	99.7	129.4	349.3	645.5	73.0	3,204
1982	114.6	45.0	185.0	53.1	161.8	111.5	101.4	379.3	64.4	58.2	92.8	113.2	264.6	634.9	68.0	2,946
1983	121.1	40.4	130.4	57.6	165.1	114.0	116.1	387.8	69.4	59.5	101.5	140.2	290.3	599.9	72.0	2,929
1984	123.8	46.7	153.0	58.0	170.2	116.0	141.8	377.4	75.5	59.5	128.0	127.2	285.1	602.0	69.0	2,996
1985	123.9	46.6	180.0	60.0	167.8	119.0	141.9	387.9	71.1	61.8	121.9	79.2	253.0	586.0	69.9	2,928
1986	123.0	50.4	190.0	55.0	151.7	119.0	140.0	320.0	72.0	64.0	119.9	58.0	280.7	589.0	71.1	2,864
1987	120.0	48.9	193.0	54.0	156.6	118.0	167.5	300.5	73.3	66.0	119.6	55.0	274.6	591.5	63.3	2,850
1988 ¹	132.0	51.5	160.0	60.5	161.1	122.0	174.1	290.6	74.4	75.6	125.8	64.0	278.6	601.0	68.0	2,886

¹ Preliminary. Source: Textile Economics Bureau, Inc.

T.537

Worldwide Noncellulosic Fiber Production (Except Olefin) In Thousands of Metric Tons

Year	Brazil	China	France	W. Germany	India	Italy/Malta	Japan	Korea Rep.	Mexico	Romania	Spain	Taiwan	Un. Kingdom	United States	USSR	Total
1980	231.4	248.0	192.0	720.1	70.5	354.8	1,357	536.4	239.4	136.0	201.7	557.8	287.6	3,242	550.0	10,476
1981	201.8	347.0	201.2	752.2	90.7	435.3	1,329	610.4	244.0	154.0	241.2	587.0	249.3	3,276	572.8	10,827
1982	198.1	384.0	190.1	669.0	106.2	428.7	1,302	612.5	252.5	153.0	231.4	630.9	204.3	2,602	587.8	10,145
1983	185.3	386.2	192.2	732.2	128.0	458.6	1,318	664.1	269.5	153.0	247.8	738.1	223.8	3,009	622.0	11,076
1984	215.8	559.4	191.7	731.0	162.3	527.8	1,369	746.5	300.2	174.4	260.4	871.8	240.0	2,937	658.3	11,805
1985	217.5	732.0	182.7	762.0	193.7	563.6	1,403	811.6	305.9	196.8	274.9	1,024	242.7	2,864	712.8	12,436
1986	237.0	747.4	167.2	745.0	220.7	576.9	1,356	862.4	296.3	199.7	276.2	1,232	208.2	2,919	757.8	12,892
1987	248.1	846.0	161.0	759.3	266.0	564.6	1,341	970.1	335.2	201.9	268.5	1,391	203.0	3,094	836.0	13,667
1988 ¹	239.7	968.0	173.0	780.0	321.2	551.2	1,352	1,115	344.9	203.0	268.4	1,430	197.0	3,147	868.5	14,239

¹ Preliminary. Source: Textile Economics Bureau, Inc.

T.538

World Production of Rayon & Other Synthetic Fibers In Thousands of Metric Tons

Year	Noncellulosic Fiber Production (Except Olefin)						Glass Fiber Production										Cigarette Tow Production
	Acrylic & Mod-Acrylic	Nylon & Aramid	Polyester	Other Fibers ³	Yarn & Monofilaments	World Total	Total	Europe ³	United States	Other Americas	Japan	Other ⁴	This Total	P.R.C. China	USSR		
1980	2,060	3,151	5,127	138	4,732	5,744	10,476	300	393	30	167	13	903	N.A.	N.A.	335	
1981	2,090	3,139	5,465	133	4,809	6,018	10,827	277	472	31	174	14	968	N.A.	N.A.	349	
1982	2,058	2,853	5,106	129	4,480	5,666	10,146	250	408	35	198	12	903	30	65	339	
1983	2,221	3,196	5,535	124	4,867	6,209	11,076	290	530	37	206	14	1,077	30	65	334	
1984	2,276	3,354	6,029	145	5,224	6,580	11,804	300	632	39	249	14	1,234	40	75	314	
1985	2,357	3,441	6,474	164	5,576	6,860	12,436	320	610	32	273	28	1,263	50	85	337	
1986	2,419	3,509	6,823	140	5,705	7,186	12,891	364	630	35	240	30	1,299	50	100	362	
1987	2,485	3,646	7,389	144	6,062	7,605	13,667	407	725	50	300	35	1,517	55	110	400	
1988 ¹	2,476	3,734	7,880	149	6,428	7,811	14,239	465	730	65	340	55	1,655	65	125	422	

¹ Preliminary. ² Alginate, Azion, Spandex, Saran, etc. ³ West & East (excluding USSR). ⁴ Except USSR & China (P.R.C.)

Source: Textile Economics Bureau, Inc.

T.539

Man-Made Fiber Production in the United States In Millions of Pounds

Year	Rayon & Acetate				Staple & Tow		Non-Cellulosic Fiber			Total Ray. & Acet. & Non-Cel.	Textile Glass Fiber	Total Man-made Fiber	Producers' Waste Shipments	
	Rayon Yarn	Textile	Acet. Yarn	Total Yarn	Rayon	Acetate	Yarn	Staple	Total				Rayon	Non-Cel.
1980	32.2	15.0	308.5	355.7	443.3	7.0	450.3	806.0	3,744.3	4,148.2	7,892.5	8,698.5	13.5	170.2
1981	33.4	15.1	257.0	305.5	460.6	4.0	464.6	770.1	3,814.8	4,191.1	8,005.9	8,776.0	15.3	174.2
1982	20.8	12.4	195.2	228.4	355.0	1.0	356.0	584.4	3,057.4	3,402.5	6,459.9	7,044.3	10.7	173.2
1983	25.0	11.2	227.6	263.8	374.8	1.4	376.2	640.0	3,568.0	3,971.0	7,538	8,178	9.4	214.1
1984	28.8	12.1	198.2	239.1	389.2	.4	389.6	628.7	3,524	3,947	7,472	8,100	11.4	216.9
1985	N.A.	N.A.	204.6	352.7	.5	353.2	557.8	3,790	3,773	7,564	8,121	N.A.	8.8	260.2
1986	N.A.	N.A.	214.8	403.7	.5	404.2	619.0	3,836	3,992	7,828	8,447	N.A.	10.4	261.5
1987	N.A.	N.A.	191.1	413.8	.5	414.3	605.4	4,010	4,306	8,316	8,921	N.A.	9.6	239.1
1988 ¹	N.A.	N.A.	213.9	399.8	.5	400.3	614.2	4,160	4,346	8,506	9,120	N.A.	7.8	254.1

¹ Preliminary. Source: Textile Organon

T.543

RAYON AND OTHER SYNTHETIC FIBERS

U.S. Rayon and Acetate Distribution In Millions of Pounds

Year	Yarn & Monofilaments							Staple & Tow & Fiber Fill						
	Producers' Shipments			Domestic Consumption				Producers' Shipments			Domestic Consumption			
	Industrial	Textile	Acetate	Total	Export	Total	Import	Rayon	Acetate	Total	Export	Total	Import	Domestic Consump.
1982	—	30.1	—	169.0	199.1	29.8	228.9	7.0	206.1	293.7	1.0	294.7	66.5	308.1
1983	—	35.5	—	197.6	233.1	28.2	261.3	8.7	241.8	333.5	1.4	334.9	43.9	348.5
1984	—	38.2	—	180.1	218.3	18.2	236.5	10.0	228.3	331.9	.4	332.3	52.1	349.3
1985	—	N.A.	—	—	187.1	23.0	210.1	13.9	201.0	323.7	.5	324.2	35.0	336.5
1986	—	N.A.	—	—	192.1	20.2	212.3	17.0	209.1	373.0	.5	373.5	30.8	390.9
1987	—	N.A.	—	—	166.8	24.9	191.7	12.8	179.6	383.1	.5	383.6	32.4	397.4
1988 ¹	—	N.A.	—	—	182.6	34.1	216.7	17.6	200.2	386.0	.5	386.5	20.5	406.9

¹ Preliminary. Source: Textile Organon

T.540

U.S. Domestic Shipments of Synthetic Fibers In Millions of Pounds

Year	Yarn & Monofilaments							Staple & Tow						Textile Glass Fiber
	Cellulosic			Non-Cellulosic				Cell- ulosic Rayon	Non-Cellulosic					
	Rayon	Acetate	Total	Nylon	Olefin ²	Polyester & Other	Total ³		Nylon	Acrylic & Mod- Acrylic	Olefin & Vinyon	Polyester	Total	
1982	30.1	169.0	199.1	1,166	577.0	1,135	2,894	293.7	673.3	457.9	138.9	1,768	3,038	904.4
1983	35.5	197.6	233.1	1,392	698.6	1,294	3,385	333.5	897.1	492.2	183.4	2,099	3,672	1,184
1984	38.2	180.1	218.3	1,438	725.6	1,145	3,309	331.9	814.4	446.7	240.9	1,992	3,494	1,309
1985	—N.A.—	—	187.1	1,417	937.6	1,204	3,559	323.7	830.3	458.7	279.7	1,873	3,441	1,260
1986	—N.A.—	—	192.1	1,480	1,049	1,092	3,621	373.0	894.9	531.2	312.7	1,999	3,737	1,339
1987	—N.A.—	—	166.8	1,554	1,136	1,113	3,803	383.1	966.0	479.3	341.1	2,201	3,987	1,513
1988 ¹	—N.A.—	—	182.6	1,572	1,184	1,157	3,914	386.0	944.9	421.1	344.2	2,312	4,022	1,588

¹ Preliminary. ² Includes film fiber. ³ Includes Saran & Spandex. Source: Textile Organon

T.541

U.S. Mill Consumption of Fiber & Products & Per Capita Consumption

Year	Yarn & Monofilaments	Staple & Tow	Mill Consumption (Million Pounds)								Per Capita ⁴ Consumption (Pounds)					Total All Fibers	
			Total R. & A. ²	Noncellulosic Fiber	Textile Glass Fiber	Waste	Total Man-made ³	Cotton	Wool	Silk	Grand Total	Non-cell. Man-made Fibers	Rayon & Acetate	Consumption (Pounds)			
														Cotton	Wool		
1982	206.1	308.1	514.2	6,131	875.6	183.9	6,654	2,479	129.5	2.0	9,264	26.9	2.2	13.5	.9	40.5	
1983	241.8	348.5	590.3	7,396	1,166.1	223.5	7,995	2,796	162.5	1.6	10,954	32.4	2.5	15.9	1.2	47.5	
1984	228.3	349.3	577.6	7,202	1,273.8	228.3	7,790	2,668	163.2	1.4	10,622	31.2	2.4	16.8	1.4	45.7	
1985	201.0	336.5	537.5	7,490	N.A.	269.0	8,036	2,796	134.7	1.5	10,968	31.9	2.3	17.7	1.5	46.6	
1986	209.1	390.9	600.0	7,846	N.A.	271.9	8,454	3,302	164.5	1.0	11,921	—	35.8	—	20.2	1.6	49.9
1987	179.6	397.4	577.0	8,276	N.A.	248.7	8,862	3,737	167.6	1.0	12,767	—	37.2	—	23.8	1.6	49.9
1988 ¹	200.2	406.9	607.1	8,399		261.9	9,012	3,401	156.1	1.0	12,570	—	37.5	—	21.4	1.4	52.3

¹ Preliminary. ² Rayon and acetate. ³ Man-made fiber data include only glass fiber for textile end uses. ⁴ Mill consumption adjusted for raw fiber equivalent of net U.S. trade in textile mfg. Source: Textile Economics Bureau; Economic Research Service, U.S.D.A.

T.542

Producer Price Index of Gray Synthetic Broadwovens (1982 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1985	149.4	148.1	147.3	147.0	148.0	147.2	146.4	146.1	146.2	146.6	147.0	147.1	147.2
1986	147.1	147.3	147.2	147.9	147.2	147.4	147.5	145.9	144.1	145.1	145.0	145.1	146.3
1987 ²	101.9	101.9	102.2	103.4	103.9	105.3	106.4	106.9	107.9	108.6	109.0	109.2	105.6
1988	110.0	111.1	111.6	111.8	112.2	113.0	113.4	113.8	113.0	113.5	113.9	114.6	112.7
1989 ¹	114.3	112.0	112.2	112.2	112.1	113.1	114.7	115.0	114.6	115.2	115.8	116.8	114.0

¹ Preliminary. ² Data prior to 1987 are for Dec. 1975 = 100. Source: Bureau of Labor Statistics. (0337-03)

T.545

Rice

World milled rice production of 329 million tonnes in 1988/89 exceeded consumption for the first time in four seasons. China and India produce over half of the world's rice and have held most of the global stocks. In China, a combination of a short 1988/89 crop, import policy changes, and potentially low stocks triggered a sharp increase in imports during the year. A record 70 million tonnes of milled rice were produced in India, but a draw-down in stocks was needed to meet domestic needs.

World production in 1989/90 was estimated at around 331 million tonnes, with China accounting for about 123 million, up 3 percent. India's output was expected to decline to 66 million tonnes.

World trade reached a record 14.6 million tonnes in calendar 1989, but was expected to fall 7 percent in 1990. Thailand, the major exporter, shipped 6 million tonnes in 1989. The U.S. was second, exporting about 2.8 million tonnes. Iraq was the leading importer of U.S. rice. In 1988/89, Iran resumed buying U.S. rice through third countries.

Major milled rice importers include the EC, Iran, Iraq, Nigeria, and Saudi Arabia.

Vietnam captured 9 percent of world rice trade in 1989 with exports of 1.3 million tonnes, well above negligible levels during most of the 1980s. The increase probably reflects broad agricultural reforms. Vietnam exports mostly low-quality rice.

U.S. milled rice production declined to 5 million tonnes in 1989/90 from 5.2 million the previous season. Domestic production in the late 1980s lagged total disappearance (of which exports are about half). Stocks at the end of 1989/90 were expected to be the lowest in nine years. Long-grain rice production accounted for the decline, while medium/short-grain rice output rose. Arkansas typically produces 50 percent of the long-grain crop and California at least 60 percent of the medium/short-grain rice. Louisiana and Texas are also major producers.

U.S. farm prices were forecast to range from \$6.00-\$8.00/cwt. in 1989/90, versus \$6.96 the previous season. The government loan rate for rice was \$6.50/cwt. for both 1989 and 1990. Target prices and loan rates have been slowly reduced in a transition to a more market-oriented program.

World rice prices soared in first-half 1989, in response to strong import demand and tight supplies. The outlook for 1989/90 was less encouraging, as world exportable supplies were expected to rise.

Futures Market

Rough rice futures are traded on the Chicago Rice and Cotton Exchange.

World Rice³ Supply & Distribution In Millions of Metric Tons

Year	Production			Exports			Imports			Utilization			Stocks (End)		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total	EC-12	Iran	Total	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
1986	6.1	462.0	468.2	2.4	10.2	12.6	1.3	.5	12.6	2.1	317.3	319.4	2.5	52.2	54.7
1987	6.0	462.2	468.2	2.4	10.6	13.0	1.2	1.0	13.0	2.5	320.7	323.2	1.7	48.6	50.2
1988	5.9	455.5	461.4	2.2	9.7	11.9	1.2	.4	11.9	2.6	316.5	319.0	1.0	43.1	44.0
1989 ¹	7.2	477.9	485.2	2.8	11.9	14.6	1.2	1.0	14.6	2.7	323.5	326.2	.9	45.5	46.4
1990 ²	7.0	483.6	490.6	2.5	11.1	13.6	1.2	1.0	13.6	2.7	329.0	331.7	.7	45.3	46.0

¹ Preliminary. ² Forecast. ³ Production is on rough basis; the rest are on milled basis. Source: Foreign Agricultural Service, U.S.D.A. T.547a

World Production of Rough Rice In Millions of Metric Tons

Crop Year	Brazil	Burma	China	Egypt	Vietnam	India	Japan	Indonesia	Rep. of Korea	Bangladesh	Philippines	Pakistan	Taiwan	Thailand	United States	World Total
1985-6	9.8	11.5	168.6	2.3	15.0	95.7	14.6	39.0	7.9	22.6	9.1	4.4	2.7	20.3	6.1	468.2
1986-7	10.6	12.0	172.2	2.7	15.4	90.6	14.6	39.0	7.9	23.1	9.0	5.2	2.5	18.9	6.0	468.2
1987-8	11.8	11.5	173.9	2.3	14.6	84.6	13.3	41.5	7.6	23.1	8.5	4.9	2.5	18.0	5.9	461.4
1988-9 ¹	11.0	12.5	169.1			105.0	12.4	42.3	8.4	23.3		4.6		21.0	7.2	485.2
1989-90 ²	10.2	12.5	175.0			99.0	13.5	43.1	7.8	24.8		5.3		21.5	7.0	490.6

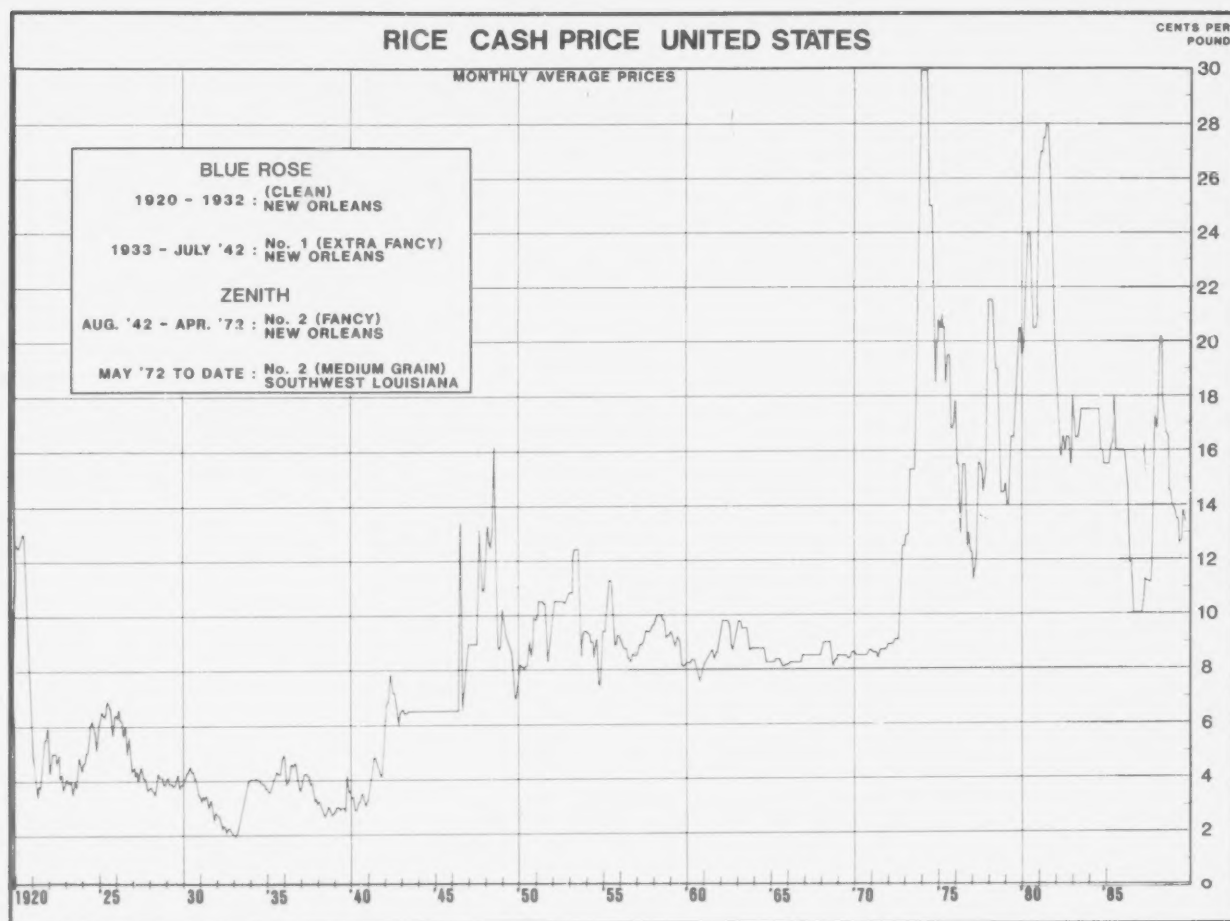
¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A. T.547

World Exports of Rice (Milled Basis), by Country of Origin In Thousands of Metric Tons

Year	Australia	Argentina	Guyana	Burma	P.R. China	Egypt (U.A.R.)	Uruguay	Pakistan	EC-12	Indonesia	India	Taiwan	Thailand	United States	Vietnam	World Total
1986	400	150	38	660	950	92	246	1,146	1,136	220	200	169	4,321	2,401	125	12,605
1987	338	150	69	575	1,020	105	190	1,226	981	100	350	240	4,355	2,444	153	13,010
1988 ¹	417	160	56	350	698	97	244	972	947	0	200	104	4,791	2,247	97	11,910
1989 ²	450	130	70	350	300	100	240	800	900	100	450	140	6,000	2,750	1,300	14,640
1990 ³	430	160	75	400	500	100	240	1,100	980	0	400	200	5,000	2,500	1,000	13,570

¹ Preliminary. ² Estimate. ³ Projected. Source: Foreign Agricultural Service, U.S.D.A. T.552

RICE



Average Wholesale Price of Rice No. 2 (Medium Grain)¹ Southwest Louisiana Dollars per cwt. bagged

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
1980-1	20.5	20.8	21.6	24.4	26.4	27.0	27.1	27.5	27.6	28.0	28.0	27.8	25.6
1981-2	26.4	24.2	22.9	21.2	20.0	18.8	17.8	16.1	16.0	16.4	16.2	16.0	19.3
1982-3	16.5	16.5	16.5	16.7	17.8	17.3	16.5	16.5	16.5	17.1	17.5	17.5	16.9
1983-4	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
1984-5	16.0	16.0	15.5	15.5	15.5	15.5	15.5	16.0	16.2	16.3	18.0	16.2	16.0
1985-6	16.0	16.0	16.0	16.0	16.0	16.0	15.67	15.5	14.60	11.90	12.0	11.35	14.75
1986-7	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.50	11.25	11.15	11.20	11.20	10.45
1987-8	11.10	11.95	16.60	17.25	16.75	18.50	19.80	20.15	20.00	18.00	17.40	16.70	17.00
1988-9 ²	16.40	16.20	14.50	14.50	14.00	13.90	13.75	13.50	13.50	14.60	14.65	15.75	14.60
	15.55	15.35											

¹ U.S. No. 2—Broken not to exceed 4%. ² Preliminary. Source: Bureau of Labor Statistics (0213-0101)

T.549

U.S. Rice (Rough) Production by Type and Variety In Thousands of Cwt.

Year	Long Grain	Medium Grain	Short Grain	Total	Year	Long Grain	Medium Grain	Short Grain	Total
1984	96,029	35,304	7,477	138,810	1987	88,995	37,651	2,957	129,603
1985	100,367	28,464	6,082	134,913	1988	118,664	37,591	3,292	159,547
1986	96,773	32,239	4,344	133,356	1989 ¹	111,498	41,076	3,853	156,428

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.548

Salient Statistics of Rice, Rough & Milled (Rough Equivalent) in the United States In Millions of Cwt.

Year Beginning August	Supply				Disappearance Domestic				Res- id- ual	Total Disap- pear- ance	Owned By CCC July 31	Put Under Price Support	Government Support Program Loan Rate (\$ CWT.)				
	Stocks Aug. 1	Pro- duction	Im- ports ²	Total Supply	Food ³	Brew- ers	Seed	Total					Exp- orts	Rough	Med & Short	Milled Long	All Classes
1983-4	71.5	99.7	.9	172.1	33.2	12.8	3.3	49.3	70.3	5.6	125.2	25.0	40.0	9.12	7.58	14.96	8.14
1984-5	46.9	138.8	.6	187.3	35.3	13.9	2.8	52.5	62.1	8.0	122.6	44.3	57.8	9.12	6.80	14.96	8.00
1985-6	64.7	134.9	2.2	201.8	45.6	14.1	2.6	62.3	58.7	3.5	124.5	43.6	74.7	8.86	6.60	14.53	8.00
1986-7	77.3	133.4	2.6	213.3	53.1	15.0	2.6	70.7	84.2	7.0	161.9	8.7	131.8	7.57	6.45	12.44	7.20
1987-8	51.4	129.6	3.0	184.0	55.3	15.4	3.2	73.9	72.2	6.5	152.6	0	125.6	7.04	6.48	11.36	6.84
1988-9 ¹	31.4	159.5	4.2	195.1	58.3	15.5	3.0	76.8	85.6	6.0	168.4	0		6.75	6.19	10.89	6.63
1989-90 ⁴	26.7	156.4	5.0	188.1	60.5	15.7	3.2	79.4	79.0	6.0	164.4	0		6.70	6.16	10.81	6.50

¹ Preliminary. ² Consists mostly of broken rice. ³ Includes shipments to territories and military food use. ⁴ Projected. Source: Economic Research Service, U.S.D.A. T.551

Acreage, Yield, Production, and Prices of Rice in the United States

Crop Year	Acreage Harvested (1,000 Acres)			Yield Per Harvested Acre (In Lbs.)		Production 1,000 Cwt.			Farm Value of Pro- duction \$1,000	Wholesale Prices (\$ Per Cwt.)		\$ Per Tonne Milled Rice Average C.I.F. At Rotterdam			
	Southern States	California	United States	California	United States	Southern States	California	United States		Arkansas ²	Houston ³	U.S. No. 2 ⁴	Thai "A" ⁵	Thai "B" ⁵	
1983-4	1,841	328	2,169	7,040	4,598	76,631	23,089	99,720	874,004	17.35	19.90	527	369	328	
1984-5	2,352	450	2,802	7,120	4,954	106,750	32,060	138,810	1,119,373	16.25	18.70	495	300	267	
1985-6	2,102	390	2,492	7,300	5,414	106,445	28,468	134,913	893,377	15.20	16.85	418	276	236	
1986-7	2,000	360	2,360	7,700	5,651	105,629	27,727	133,356	495,505	12.20	11.60	260	279	232	
1987-8	1,963	370	2,333	7,550	5,555	101,668	27,935	129,603	919,620	17.80	19.85	408	359	318	
1988-9 ¹	2,475	420	2,895	7,000	5,511	130,057	29,490	159,547	1,076,942	15.45	15.55	312	382	337	
1989-90 ¹	2,336	410	2,746	7,900	5,697	124,038	32,390	156,428	1,055,889						

¹ Preliminary. ² F.O.B. mills, Arkansas, medium. ³ Houston, Texas (long grain). ⁴ Milled, 4%, Bagged. ⁵ SWR 100% Bagged. Source: Economic Research Service, U.S.D.A. T.550

U.S. Exports of Milled Rice¹ by Country of Destination In Thousands of Metric Tons

Crop Year	Belg- Lux.	South Africa	Canada	W. Ger- many	United Kingd.	South Korea	Niger- ia	Indo- nesia	Nether- lands	Bangla- desh	Liberia	Saudi Arabia	Switzer- land	Iraq	Iran	Total Exports
1982-3	114.9	109.3	100.6	14.1	26.2	187.8	168.7	63.4	32.4	67.3	91.3	279.1	57.2	279.2	—	2,219
1983-4	135.3	154.5	94.1	17.1	4.2	98.9	82.7	81.6	39.1	55.7	83.5	285.7	65.1	274.8	0	1,644
1984-5	133.1	83.6	97.6	17.1	9.4	.1	.5	3.0	30.2	80.3	52.5	240.8	55.4	380.4	0	1,961
1985-6	94.4	61.4	82.9	13.0	15.4	.1	—	2.0	18.7	0	81.1	174.3	41.3	455.8	0	1,881
1986-7 ²	116.2	88.9	63.6	35.7	28.0	.5	.1	.4	91.5	89.7	76.3	214.8	68.6	527.4	0	2,719

¹ No adjustment of brown & parboiled rice has been made; treated as milled rice. ² Preliminary. Source: Bureau of the Census, Dept. of Commerce T.553

Exports of Rice from the United States In Thousands of Metric Tons²

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1984-5	384	567	331	343	307	236	292	411	315	355	296	336	4,173
1985-6	380	489	417	290	283	277	163	249	208	212	450	603	4,021
1986-7	778	835	565	446	323	343	411	365	399	560	254	582	5,861
1987-8 ²	215	199	252	235	158	186	136	186	151	220	126	169	2,233
1988-9	114	163	235	238	274	231	212	308	206	345	201	270	2,797
1989-90	178												

¹ 162 pounds rough—100 pounds clean. ² Prior to 1987-8 data are in millions of pounds¹ (clean basis). Source: Department of Commerce T.554

Average Price Received by Farmers for Rice (Rough) in the U.S. In Dollars Per 100 Pounds (Cwt.)

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average ¹
1984-5	8.22	8.17	8.08	8.13	8.08	8.09	7.72	8.17	8.20	7.91	7.83	7.54	8.04
1985-6	7.86	7.55	7.73	7.84	7.71	7.90	7.86	7.60	5.32	4.52	4.04	3.86	6.53
1986-7	3.95	3.82	3.89	3.91	3.76	3.61	3.80	3.68	3.64	3.74	3.68	3.65	3.75
1987-8	3.74	4.32	5.88	7.08	7.37	7.70	8.97	8.79	8.33	7.71	7.29	7.51	7.27
1988-9 ²	7.43	6.91	6.74	6.72	6.60	6.47	6.59	6.47	6.66	6.76	6.94	7.33	6.75
1989-90 ²	7.33	7.55	7.54										

¹ Weighted average by sales. ² Preliminary. Source: Crop Reporting Board, U.S.D.A. T.555

Rubber

The International Natural Rubber Agreement, which came into being in 1979, proved effective during the 1980s. Thirty producer and consumer nations are members, with the latter including the U.S., the European Community, the USSR, and China. The agreement, unlike many other commodity pacts, does not attempt to peg prices, but responds more to market conditions.

During the agreement's life, U.S. market prices for high-quality RSS grade (ribbed, smoked sheets) rubber rose to \$1,625/tonne in 1980, fell to \$924 in 1985, were back to \$1,557 in mid-1988, and then fell again to under \$1,000. These gyrations were within the range set by the agreement.

Under the accord, the buffer stock manager can sell rubber out of the stockpile, when prices rise 15 percent from a hybrid target price (which reflects several types of natural rubber, expressed in a blend of Malaysian and Singapore dollars). If prices rise by 20 percent, buying is required. Selling is in order if prices decline by 15 percent or 20 percent. The agreement has the power to modify price ranges, if required by market conditions.

The African Natural Rubber Producers and Processors Trade Association was formed in 1989 to consider ways to improve the quality of African rubber and to support the interests of producers.

During the 1980s, world production of natural and synthetic rubber trended steadily higher, totaling an estimated 15.4 million tonnes in 1989, up from 12.5 million in 1980. This growth pattern was likely to carry into the 1990s. Natural rubber accounts for about one-third of annual production and totaled 5.1 million tonnes in 1989, compared to synthetic's 10.4 million. Estimates for 1990 put natural rubber output at 5.2 million tonnes and synthetic at 10.5 million.

Natural rubber production is concentrated in Asia, with Malaysia consistently the largest producer, accounting for about one-third of the world's output. Malaysia's 1989 output was 1.6 million tonnes. Indonesia and Thailand followed with production of 1.3 million and 1.0 million tonnes, respectively. Slight gains were expected in both countries in 1990.

World synthetic rubber production is more diversified. The USSR is the largest producer, followed by the U.S., while Japan is a distant third. The

three nations easily account for more than half of world output, with about 6 million tonnes produced in 1989. Collectively, the EC produces much more synthetic rubber than Japan's 1.3 million tonnes. The largest producer within the EC is France, with annual output of almost 0.6 million tonnes.

Growth is evident in Brazil, where synthetic production totaled 283,000 tonnes in 1988 and was estimated at 338,000 in 1990. South Korea's synthetic output should expand to 230,000 tonnes by 1990. China could also be on the verge of expanding synthetic production, if it opts to focus on industries that require considerable capital investment. China's 1988 synthetic output totaled 252,000 tonnes and was forecast to be 278,000 in 1990; China's natural production during that period was expected to rise from 240,000 tonnes to 255,000.

The automotive industry accounts for more than half of the world's rubber consumption. Natural rubber usage in radial tires should expand further, especially in the Pacific Rim. Total world rubber consumption during the 1980s kept pace with rising production. In 1989, consumption was about 15.5 million tonnes, a shade more than production. Early estimates for 1990 place consumption at almost 16 million tonnes, which would exceed expected world output.

The U.S. is the world's largest single consumer of rubber, accounting for about one-fifth of world use. This share could slip in the 1990s, as demand rises in Eastern Europe, the EC, and the Far East. In 1989, U.S. consumption totaled almost 3 million tonnes, but it was expected to be somewhat lower in 1990. The EC's usage was estimated at 2.65 million tonnes in 1989 and 2.71 million tonnes in 1990, while Eastern European consumption was expected to increase from 3.29 million tonnes in 1989 to almost 3.4 million in 1990.

Futures Markets

Rubber futures are listed for trading in Kuala Lumpur, Tokyo, and Singapore. Trading interest tends to be light. During 1989, commodity exchanges in Malaysia and Indonesia considered developing a futures contract in technically specified rubber, rather than the standard ribbed sheet rubber No. 1 and No. 3 grades.

U.S. Imports of Natural Rubber (Includes Latex & Guayule) In Thousands of Metric Tons³

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total ¹
1981	30.06	86.64	53.38	67.62	66.36	50.47	41.59	43.40	62.76	69.42	56.23	49.13	662.4
1982	50.99	59.33	45.71	53.86	56.19	63.39	38.67	54.35	40.60	54.36	51.37	49.45	618.3
1983	33.01	49.63	48.54	62.11	63.44	65.20	50.41	31.90	44.22	67.83	71.06	54.71	642.1
1984	87.84	57.82	75.45	69.18	70.25	41.45	73.81	56.23	67.46	61.95	62.36	62.21	786.0
1985	71.64	71.68	88.04	63.98	84.66	48.09	59.97	45.30	40.73	69.44	71.81	64.49	779.8
1986	63.64	70.32	76.62	83.12	47.64	54.01	68.96	44.47	62.91	72.34	53.13	55.83	753.0
1987 ²	55.0	89.9	80.7	32.7	63.6	58.0	63.2	46.8	58.5	56.8	62.9	77.7	745.7
1988 ³	83.2	69.6	87.0	68.6	67.2	64.9	49.5	83.3	59.1	69.3	77.4	74.7	853.8
1989 ²	99.3	52.2	99.1	74.6	87.5	63.8	77.9	67.1	70.4	71.6	79.7		

¹ Includes latex and guayule. ² Preliminary. ³ Data prior to 1987 are in thousands of long tons. Source: Department of Commerce

World Rubber Production¹ In Thousands of Metric Tons

Year	Natural										Synthetic						World Total
	Sri Lanka	India	Indonesia	Malaysia	Philippines	Thailand	Liberia	Brazil	China	World Total	Canada	West Germany	Japan	United States	United Kingdom	USSR	
1980	133.2	155.4	1,020	1,530	69.9	501.1	77.5	27.8	113.0	3,850	252.8	389.9	1,094	2,215	211.8	2,040	8,695
1981	123.9	150.7	867.5	1,510	75.3	504.0	77.5	30.3	127.7	3,705	263.3	396.8	1,010	2,225	226.2	2,000	8,545
1982	126.2	165.9	880.0	1,494	74.2	552.2	68.0	32.8	152.6	3,750	181.7	383.8	930.7	1,817	207.6	1,950	7,825
1983	140.0	168.0	997.2	1,564	71.8	587.2	76.5	35.2	172.4	4,030	182.0	418.0	1,003	1,987	219.5	1,970	8,275
1984	141.9	183.9	1,116	1,531	80.8	628.6	86.4	36.0	188.8	4,255	217.8	437.6	1,161	2,219	237.2	2,085	9,046
1985	137.5	198.3	1,130	1,470	90.1	725.7	84.4	40.4	187.9	4,340	209.2	447.6	1,158	2,026	232.6	2,125	8,945
1986	137.8	219.0	1,049	1,539	87.2	782.1	88.7	32.6	209.7	4,450	187.1	452.5	1,150	2,119	249.2	2,320	9,245
1987 ²	121.8	227.4	1,203	1,579	83.0	921.6	93.0	26.6	237.6	4,780	179.8	468.4	1,192	2,182	257.0	2,366	9,430
1988 ³	122.4	254.8	1,235	1,660	85.0	974.9	108.4	32.9	240.0	5,040	197.0	492.8	1,299	2,335	312.8	2,435	10,145
1989 ³										5,135							10,585

¹ Including rubber in the form of latex. ² Preliminary. ³ Estimate. Source: Rubber Study Group

T.556

World Consumption of Natural and Synthetic Rubber In Thousands of Metric Tons

Year	Natural										Synthetic					
	Australia	Brazil	Canada	France	West Germany	Japan	United Kingdom	United States	World Total	Canada	France	West Germany	Japan	United Kingdom	United States	World Total
1980	42.2	81.1	80.0	187.7	179.7	427.0	130.8	585.0	3,760	200.0	341.9	421.3	885.0	248.2	1,980	8,785
1981	41.9	74.4	82.0	169.0	169.1	436.0	120.0	635.0	3,700	210.0	303.4	396.2	851.0	247.0	2,022	8,565
1982	36.4	67.8	76.0	158.0	171.2	439.0	118.0	585.0	3,655	182.0	265.2	386.9	797.0	232.0	1,765	8,035
1983	30.9	70.2	87.0	163.0	179.5	504.0	120.0	665.0	3,990	195.0	276.6	395.8	851.0	185.0	1,883	8,300
1984	35.9	88.7	102.0	162.0	190.0	525.0	118.0	750.7	4,230	280.0	287.0	403.0	915.0	195.0	2,062	8,955
1985	35.8	97.6	95.0	156.0	202.2	539.5	126.0	764.0	4,350	173.0	311.8	411.3	947.5	201.0	1,962	8,950
1986	30.6	105.6	86.0	158.7	198.7	535.0	130.0	743.0	4,425	190.2	315.0	426.0	910.0	195.0	2,075	9,335
1987 ¹	35.5	115.4	98.0	174.0	198.5	568.0	134.0	789.0	4,810	210.0	316.4	453.4	946.0	216.0	2,017	9,600
1988 ²	40.5	125.3	82.8	181.0	203.6	623.0	140.0	858.3	5,115	202.0	315.0	471.0	1,042	226.5	2,017	10,020
1989 ²									5,315							10,290

¹ Preliminary. ² Estimate. Source: Rubber Study Group

T.557

World Stocks¹ of Natural Rubber, January 1 In Thousands of Metric Tons

Year	In Producing Countries								In Consuming Countries (Commercial Stocks)									
	Brazil	Vietnam	Sri Lanka	Indonesia	Malaysia (Peninsular)	Singapore	Thailand	Total	Australia	Canada	China	France	West Germany	India	Japan	United Kingdom	United States	Total
1980	20.8	4.0	61.3	75.0	240.1	51.1	44.7	515	3.8	7.2	135.0	20.3	13.5	54.6	76.5	27.6	144.6	735
1981	20.8	4.0	58.5	75.0	254.8	46.3	61.0	535	3.2	6.0	150.0	19.6	13.5	40.1	106.9	21.4	126.7	770
1982	19.6	4.0	33.7	75.0	286.3	43.9	60.0	535	2.7	9.9	140.0	16.8	14.5	45.9	116.9	20.0	131.9	835
1983	18.5	4.0	11.3	75.0	266.0	26.9	36.6	570	4.2	6.9	137.5	9.5	14.5	60.6	90.8	17.8	95.4	860
1984	15.3	4.0	9.6	75.0	254.9	32.2	39.6	545	1.8	7.4	185.0	9.0	14.5	47.4	81.0	16.8	80.8	875
1985	11.2	5.0	10.2	95.0	228.8	36.8	41.3	545	2.8	8.5	187.5	4.0	15.0	58.0	70.7	15.8	96.4	925
1986	13.5	6.0	12.2	90.0	191.8	22.0	47.1	515	2.6	9.0	122.5	4.0	15.0	58.2	70.7	10.0	95.2	900
1987	13.3	6.0	23.6	87.5	207.3	21.6	32.5	530	2.6	12.0	105.0	3.0	15.0	85.5	61.9	10.5	73.0	890
1988 ²	13.5	6.0	20.0	100.0	208.5	21.6	37.8	490	2.5	12.5	147.5	6.0	15.0	77.6	63.6	10.5	72.5	870
1989 ³		6.0	23.2	105.0	286.5	32.2	53.0	545	2.4	13.0	150.0		14.5	80.9	97.2	12.0	81.7	780
1990 ³								450										640

¹ Exclusive of "Stock Afloat" and unreported gov't. stockpiles. ² Preliminary. ³ Estimate. Source: Rubber Study Group (London)

T.558

Net Exports of Natural Rubber from Producing Areas In Thousands of Metric Tons

Year	Burma	Kampuchea	Sri Lanka (Ceylon)	Indonesia	Malaysia (Peninsular)	Sabah	Sarawak	Thailand	Vietnam	Other Asia	Liberia	Nigeria	Other Africa	Papua New Guinea	World Total
1980		—	120.9	976.1	1,416	30.9	35.2	456.8	33.3	30.5	76.5	14.6	59.2	4.0	3,270
1981		4.0	132.5	808.7	1,402	25.5	28.2	476.0	33.7	30.8	76.9	23.6	57.5	4.5	3,110
1982		7.5	131.3	801.4	1,317	21.7	15.9	546.7	32.3	24.2	60.1	26.8	57.8	2.3	3,065
1983		10.0	125.2	938.0	1,498	21.5	18.9	552.5	35.8	19.0	73.6	28.8	62.0	2.7	3,370
1984		12.0	126.2	1,010	1,486	25.2	18.0	595.2	35.0	19.0	87.9	28.8	65.5	3.0	3,520
1985		14.0	120.4	1,001	1,426	22.0	17.4	685.3	35.5	24.7	87.2	29.1	69.0	5.1	3,610
1986		20.0	110.0	958.7	1,444	24.6	16.3	755.2	35.0	30.3	90.4	34.4	78.0	4.9	3,615
1987 ¹		20.0	106.0	1,093	1,329	29.5	19.9	873.2	40.0	24.3	91.1	36.5	94.0	3.8	3,935
1988 ²		21.0	99.3	1,132	1,500	35.8	28.3	906.4	43.0	32.5	105.6	47.4	110.0	4.5	4,015

¹ Preliminary. ² Estimate. Source: Rubber Study Group (London)

T.559

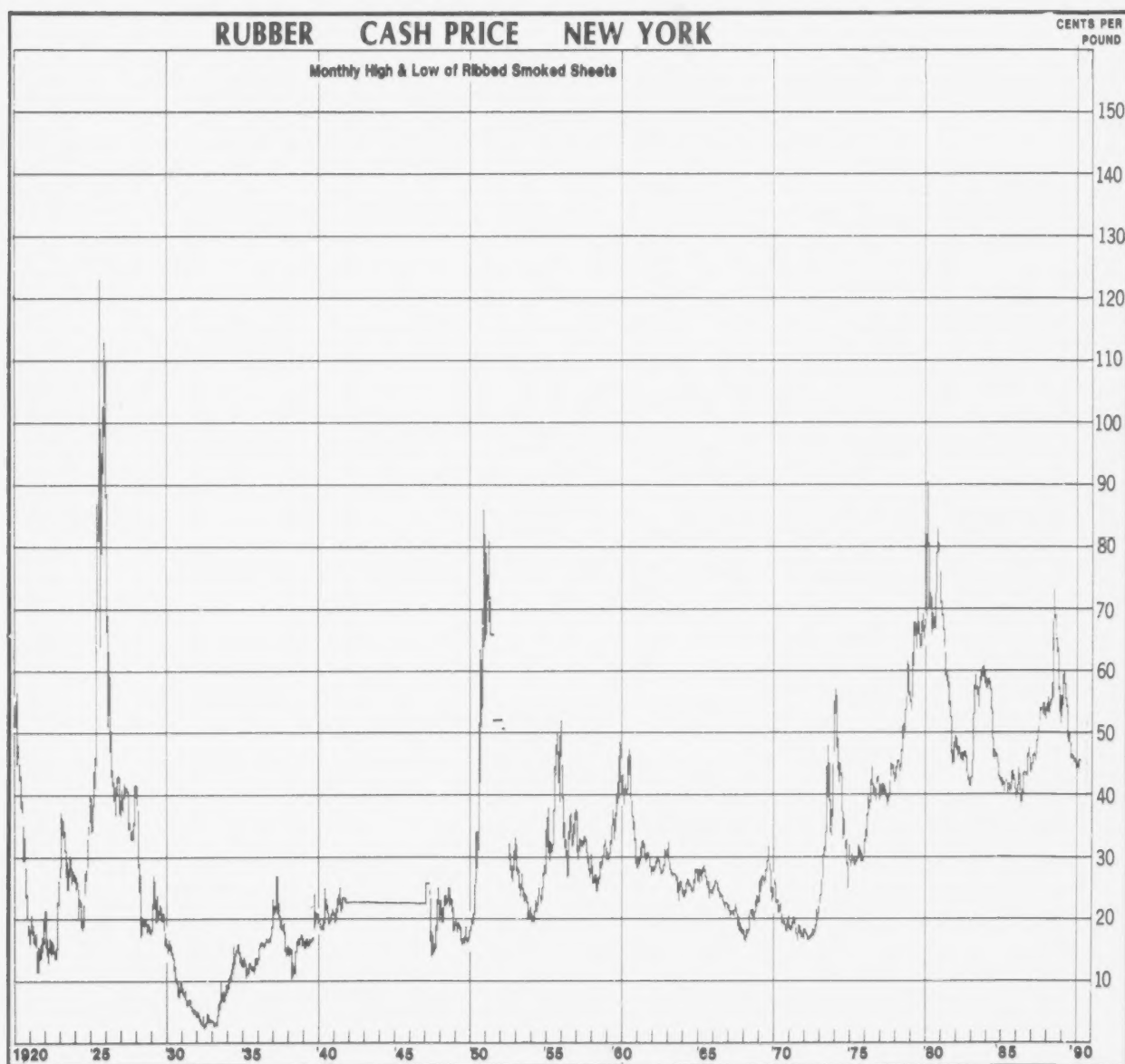
RUBBER

Average Spot Crude Rubber Prices (Smoked Sheets¹) in New York In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	71.3	69.0	65.0	59.0	58.0	57.0	56.0	54.0	50.4	—	45.6	48.3	57.6
1982	48.8	46.5	47.0	45.3	45.3	46.1	46.5	46.8	44.5	42.6	42.1	41.8	45.3
1983	44.0	48.5	57.8	57.8	56.8	54.5	58.3	59.3	60.5	60.5	58.3	—	56.0
1984	57.3	58.3	58.0	56.8	51.8	47.0	46.0	46.0	46.0	43.0	42.8	42.0	49.6
1985	42.3	42.3	41.8	42.3	40.8	42.0	40.3	41.8	41.8	43.8	42.5	39.8	41.8
1986	40.7	42.8	42.0	39.2	40.1	41.0	43.5	43.5	45.3	46.9	44.7	44.7	42.9
1987	45.9	46.5	43.8	47.4	49.1	50.6	53.5	53.7	54.2	53.8	53.1	54.0	50.5
1988	54.6	53.8	54.9	55.7	58.6	67.6	66.1	63.8	60.1	55.2	53.0	54.1	58.1
1989	56.0	59.3	54.1	55.2	52.1	49.5	49.2	47.2	46.1	46.1	45.6	44.8	50.4
1990	44.7												

¹ No. 1, ribbed, plantation rubber. Source: Bureau of Labor Statistics (07-11-02.01); Wall St. Journal; CRB.

T.561



Consumption of Natural Rubber in the United States In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	68.3	66.6	74.5	61.8	60.2	59.0	57.9	63.2	57.7	65.2	55.6	47.9	739.00
1980	63.0	57.3	55.7	46.9	42.3	41.3	38.8	43.2	49.4	49.5	50.3	48.7	586.15
1981	49.0	52.6	55.4	55.1	53.9	59.5	56.4	51.1	52.1	57.3	49.7	42.6	634.67
1982	55.3	59.9	50.2	57.8	63.3	68.9	32.7	65.6	48.8	53.3	48.9	56.0	660.61
1983	64.5	44.5	55.3	55.3	56.9	67.0	48.8	39.2	50.2	75.3	69.7	49.6	676.27
1984	73.8	56.8	83.1	68.2	65.1	42.4	73.9	56.1	63.7	58.3	55.4	54.1	750.74
1985	71.8	65.7	91.5	51.7	89.0	45.2	55.4	47.3	68.1	47.2	65.7	52.4	774.69
1986	59.4	71.8	71.3	81.9	45.5	54.6	69.9	49.9	57.0	80.3	50.8	51.2	743.56
1987 ¹	49.9	85.4	81.3	62.3	62.6	56.3	67.4	61.4	61.9	57.4	60.6	69.4	775.82
1988 ¹	79.1	65.2	88.1	58.7	65.7	60.5	49.1	76.6	64.6	74.5	75.4	75.2	858.28
1989 ¹	89.9	51.1	96.6	68.4	87.9	65.1	82.9	72.1	73.1				

¹ Preliminary. Source: Rubber Manufacturers' Association

T.562

Stocks of Natural Rubber in the United States, Beginning of Month In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1979	125.6	121.4	115.6	116.1	136.6	130.2	137.7	146.0	144.4	135.6	135.0	124.5
1980	132.1	131.4	135.3	141.4	152.4	145.7	147.4	149.9	138.5	132.9	129.5	123.1
1981	126.7	128.0	125.4	122.8	127.6	124.1	119.5	113.5	111.2	114.4	123.0	130.5
1982	142.4	127.1	126.5	121.3	116.6	110.8	105.4	110.2	97.7	89.0	90.2	95.4
1983	95.4	91.8	95.0	87.4	93.8	100.0	97.9	99.2	90.7	83.3	74.8	75.9
1984	80.8	95.2	95.7	87.7	87.8	91.4	88.5	87.0	84.8	86.2	87.3	91.3
1985	96.4	94.3	97.3	91.4	101.9	95.9	95.6	97.9	93.9	84.9	81.1	85.1
1986	95.2	97.0	96.9	100.4	98.6	98.6	96.7	93.8	86.4	91.6	75.3	78.2
1987 ¹	38.5	76.7	78.8	70.2	80.2	79.5	79.0	82.5	77.0	70.6	65.9	65.5
1988 ¹	72.5	74.9	75.3	70.7	74.6	72.9	71.6	68.7	71.2	63.9	57.9	58.4
1989 ¹	61.7	71.1	67.5	77.4	82.2	86.7	86.2	86.0	88.0	83.4		

¹ Preliminary. Source: Rubber Manufacturers' Association

T.563

Stocks of Synthetic Rubber in the United States, Beginning of Month In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1979	424.1	407.1	400.0	393.6	398.9	391.5	401.3	411.3	402.2	402.8	389.9	402.1
1980	402.9	439.9	436.2	427.6	452.2	445.1	429.2	391.2	372.3	339.7	325.4	328.9
1981	341.8	364.5	354.6	347.0	365.9	368.3	359.8	369.4	353.4	351.9	352.6	364.4
1982	349.0	333.3	336.8	349.2	358.3	364.4	352.9	342.8	326.6	304.3	318.8	294.6
1983	269.7	281.0	284.8	283.5	283.8	294.3	290.8	304.8	269.8	256.2	250.7	276.9
1984	277.9	284.1	277.2	277.0	294.6	305.0	302.3	309.3	300.6	312.0	301.4	285.9
1985	272.1	281.2	271.8	288.6	294.0	398.0	247.8	295.8	413.5	397.3	374.9	367.0
1986	213.9	352.8	217.5	397.7	403.0	238.6	247.5	239.9	233.4	236.5	231.1	224.6
1987 ¹	235.6	247.0	249.4	242.6	240.3	242.2	241.8	251.9	240.6	222.8	213.6	213.8
1988 ¹	229.7	237.8	235.1	229.6	237.5	246.2	249.6	261.0	259.9	258.6	261.3	260.7
1989 ¹	279.3	288.9	287.7	294.4	289.6	300.4	303.7	309.0	314.5	323.7		

¹ Preliminary. Source: Department of Commerce

T.564

Production of Synthetic Rubber in the United States In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	207.9	200.8	232.1	216.7	223.3	210.7	202.9	202.8	210.0	213.8	206.0	207.6	2,535
1980	195.6	194.7	206.8	192.4	159.6	129.6	110.3	123.7	149.8	174.6	178.5	193.7	2,015
1981	193.5	169.7	200.4	180.9	175.9	158.2	161.5	159.7	168.4	170.0	157.7	125.5	2,021
1982	155.6	162.3	187.9	171.7	171.1	156.8	139.7	145.5	147.9	154.4	122.4	116.5	1,829
1983	155.2	153.9	170.1	160.5	171.1	164.6	154.4	146.7	159.6	174.5	189.4	160.2	1,936
1984	183.3	173.0	190.3	193.2	191.4	183.7	166.7	178.4	173.0	179.7	158.3	147.5	2,156
1985	169.9	161.6	182.1	166.0	154.2	139.5	150.4	154.2	160.3	153.6	149.2	131.8	1,838
1986	166.5	156.7	189.1	178.6	167.8	164.9	155.3	170.5	178.6	186.7	145.6	174.7	2,013
1987 ¹	187.1	177.5	193.6	174.1	179.8	175.0	186.2	164.2	176.0	191.0	182.9	194.8	2,184
1988 ¹	187.0	179.1	201.2	193.7	205.4	197.4	187.4	200.4	189.6	193.8	204.3	189.9	2,335
1989 ¹	206.3	181.8	206.2	207.2	189.1	179.6	178.7	186.2	187.1				

¹ Preliminary. Source: Department of Commerce

T.565

RUBBER

Consumption of Synthetic Rubber in the United States In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	170.8	176.1	191.1	148.9	135.7	120.1	131.0	133.7	166.0	167.9	157.7	155.1	1,854
1981	153.0	166.7	194.0	144.9	167.1	154.1	144.7	165.0	163.5	163.8	141.1	131.9	1,890
1982	153.3	140.7	154.3	145.3	148.5	154.5	135.8	150.5	158.1	131.0	136.8	136.1	1,757
1983	131.7	140.2	158.2	146.3	146.2	156.7	135.6	170.3	170.5	180.4	158.2	147.2	1,828
1984	177.5	175.4	180.5	166.7	167.1	171.0	147.1	173.9	151.5	184.1	166.3	147.2	2,062
1985	155.8	169.5	159.6	154.8	163.6	137.9	139.8	150.6	171.6	174.3	154.0	140.3	1,802
1986	160.7	145.0	175.7	157.6	163.9	148.0	151.5	168.5	160.6	177.5	145.8	155.7	1,895
1987 ¹	162.8	166.1	182.8	160.5	163.1	157.8	161.9	163.6	172.2	185.1	167.6	174.1	2,017
1988 ¹	158.5	166.8	186.8	163.1	172.1	166.3	160.9	171.1	162.5	168.4	182.8	151.4	2,017
1989 ¹	191.7	173.0	189.4	194.7	170.7	165.4	167.5	172.6	156.6				

¹ Preliminary. Source: Department of Commerce

T.566

Exports of Synthetic Rubber from the United States In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	31.46	34.48	41.98	41.68	46.88	37.33	36.54	30.46	25.51	33.45	30.72	32.31	422.80
1981	31.21	31.65	38.73	31.77	32.00	28.55	26.27	21.97	24.40	23.94	22.49	21.65	334.63
1982	27.76	23.46	31.18	26.53	24.73	25.23	20.40	22.04	22.83	21.13	20.47	18.86	284.62
1983	20.24	18.61	24.44	24.91	31.66	24.37	20.15	21.08	22.01	20.14	23.75	23.67	275.03
1984	24.12	22.22	28.09	29.13	29.42	28.02	29.58	30.24	29.95	25.54	25.92	25.68	327.91
1985	23.86	22.68	28.88	26.23	30.38	27.25	22.21	24.95	27.60	25.33	22.13	25.44	306.94
1986	23.49	27.66	24.00	35.39	25.71	25.04	26.34	31.77	34.24	30.39	27.78	27.04	338.85
1987 ¹	31.91	32.69	35.49	36.48	38.79	36.34	33.56	32.75	38.23	32.93	36.94	36.53	429.40
1988 ¹	39.07	37.35	41.77	41.68	40.43	41.12	29.76	44.03	38.62	37.18	36.25	32.12	459.98
1989 ¹	42.40	45.66	54.98	41.27	54.39	51.30	43.71	48.21	54.54				

¹ Preliminary. Source: Department of Commerce

T.567

Production of Auto. Pneumatic Casings² & Truck & Bus Retail Sales¹ in the U.S. In Ths. of Casings

Year	Jan.	Feb.	Mar.	Apr.	May	Total Production of Tires			Sept.	Oct.	Nov.	Dec.	Total	Retail Sales ¹
						June	July	Aug.						
1980	15,188	15,059	15,082	13,678	11,370	10,716	10,206	12,057	13,911	15,790	12,861	13,346	159,263	2,003
1981	15,434	15,614	16,805	15,438	15,157	15,447	14,321	15,443	15,894	16,604	13,750	11,855	181,762	1,808
1982	14,866	15,387	17,051	15,077	14,856	15,669	12,293	14,835	15,528	15,381	13,585	13,972	178,500	2,152
1983	15,497	14,992	15,370	16,325	15,653	15,473	12,570	16,440	16,360	16,734	15,136	15,483	186,923	2,654
1984	16,749	17,498	19,122	16,988	18,043	18,557	15,546	18,078	17,333	19,136	16,645	15,682	209,375	3,485
1985	18,381	17,375	18,704	17,388	16,781	15,216	12,989	16,635	16,844	17,626	15,198	13,786	196,923	3,913
1986	16,306	15,966	16,968	16,037	15,003	14,647	14,203	16,112	16,540	18,180	15,144	15,183	190,289	3,947
1987 ³	16,879	16,593	17,733	16,680	16,982	16,548	15,796	16,723	17,204	18,956	16,455	16,428	202,978	4,088
1988 ³	17,345	18,027	19,305	17,642	17,403	17,941	15,022	18,058	18,115	19,138	17,253	16,102	211,351	4,545
1989 ³	18,944	18,102	19,670	19,224	19,090	18,312	14,835	18,288	16,963					

¹ Domestic & imports, in thousands. ² Passenger cars, buses, trucks & motorcycle tires. ³ Preliminary. Sources: Rubber Manufacturers' Association; Motor Vehicle Manufacturing Association

T.568

Stocks of Auto. Pneumatic Casings & Passenger¹ Car Retail Sales in the U.S. In Ths. of Casings

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	Total Stocks of Tires			Sept. 1	Oct. 1	Nov. 1	Dec. 1	Retail Sales ¹
						June 1	July 1	Aug. 1					
1980	44,873	46,760	49,993	50,471	49,220	46,972	42,817	40,079	37,057	33,730	32,112	32,363	8,979
1981	33,298	41,226	44,402	45,217	44,713	43,480	41,445	39,998	39,601	38,986	39,487	41,112	8,535
1982	40,863	42,904	46,254	47,817	46,583	45,337	43,475	40,763	40,192	38,685	38,116	38,436	7,980
1983	39,955	43,839	45,483	50,287	51,921	42,395	39,622	36,989	35,541	32,854	31,530	31,676	9,179
1984	33,340	35,450	37,615	38,529	38,026	37,693	37,678	36,365	37,199	37,685	37,277	37,995	10,394
1985	39,623	41,948	45,905	48,875	49,168	49,063	46,909	44,349	43,553	41,514	40,425	40,023	11,039
1986	39,823	40,717	43,499	45,359	44,519	44,741	40,009	38,036	36,836	34,890	34,130	33,681	11,450
1987 ²	34,286	36,323	38,341	40,673	39,962	40,312	37,872	37,344	37,501	36,234	34,539	33,702	10,278
1988 ²	34,338	37,047	39,904	40,737	41,149	40,159	37,976	37,355	36,064	34,771	34,074	33,434	10,639
1989 ²	33,191	35,186	37,884	40,552	42,791	43,530	42,695	42,596	41,902	39,852			

¹ Domestic & imports, in thousands. ² Preliminary. Sources: Rubber Manufacturers' Association; Motor Vehicle Mfg. Association

T.569

Rye is used in bread, as an ingredient in whiskey and gin, and as an animal feed. U.S. production in 1989 was estimated at 14 million bushels, compared with 15 million the previous year. Both crops were drought-affected and considerably below 1987's 19.8 million bushels and the recent peak of 32.5 million in 1984.

On the demand side, U.S. disappearance in 1989/90 was estimated at 19 million bushels, which was a slight drop from the previous year's 20.5

million and well below 23.3 million in 1986/87. Food, industrial, and seed use register little change from year to year, while feed use is more variable. In 1989/90, usage for feed was projected to decline to 10 million bushels from 11.8 million the previous year and the peak of 14.6 million in 1984/85.

The U.S. government support loan rate was reduced to \$1.40/bushel in 1989 from \$1.50 a year earlier. The season's average price was estimated by the USDA at \$2.10/bushel, down from \$2.49 the previous year.

Rye futures are traded on the Winnipeg Commodity Exchange (WCE).



RYE

World Production of Rye In Thousands of Metric Tons

Crop Year	Argentina	Austria	Canada	Czechoslovakia	Denmark	France	Germany		Hungary	Netherlands	Poland	Spain	Turkey	USSR	United States	World Total
							West	East								
1980-1	155	383	448	575	199	405	2,184	1,917	139	39	6,566	284	525	10,205	419	25,268
1981-2	149	320	927	544	208	342	1,793	1,797	116	29	6,731	212	520	9,500	478	24,373
1982-3	148	348	933	583	235	327	1,703	2,119	120	26	7,792	169	430	14,000	496	30,108
1983-4	130	348	827	751	315	278	1,646	2,092	138	26	8,781	253	380	14,000	689	31,407
1984-5	140	380	664	710	608	321	1,983	2,510	192	25	9,540	325	360	13,400	827	33,398
1985-6	100	339	569	620	565	283	1,877	2,505	163	19	7,600	295	360	15,700	524	32,217
1986-7	60	284	609	545	546	200	1,818	2,406	169	19	7,281	220	350	15,248	496	39,979
1987-8 ¹	60	309	493	500	512	275	1,636	2,375	160	25	7,788	320	340	18,055	501	34,033
1988-9 ²			300	500	400		1,600	1,800			7,100			19,000	382	30,800
1989-90 ²															346	

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.570

Salient Statistics of Rye in the United States

Year Begin. June 1	Supply						Disappearance						Acreage		Yield Per Har- vested Acre Bushels	
	Stocks, June 1		Total Stocks	Produc- tion	Im- ports	Total Supply	Domestic Use				Ex- ports	Total Disap- pearance	Plant- ed	Har- vested for Grain		
	Pri- vately Owned ²	Gov't. ³					Food	Indus- try	Seed	Feed ³						Total
														Mil.		
1980-1	12,000	192	12,192	16,483	10	28,685	3,515	2,050	4,150	6,700	16,400	7,494	23,900	2,488	650	24.6
1981-2	4,000	145	4,030	18,187	432	22,600	3,458	2,242	4,160	8,200	18,100	1,529	19,600	2,566	685	26.6
1982-3			3,012	19,533	3,043	25,600	3,315	2,256	4,300	9,600	19,500	194	19,700	2,533	677	28.9
1983-4			5,822	27,116	1,600	34,500	3,500	2,100	4,700	11,900	22,200	1,000	23,200	2,707	896	30.3
1984-5			11,300	32,463	600	44,400	3,500	2,000	4,100	14,600	24,200	400	24,600	2,971	981	33.1
1985-6			19,800	20,637	2,200	42,600	3,500	2,100	3,800	11,200	20,600	200	20,800	2,563	717	28.8
1986-7			21,900	19,522	1,000	42,400	3,500	2,000	3,700	14,100	23,300	500	23,800	2,384	677	28.8
1987-8			18,600	19,818	1,200	39,600	3,500	2,000	3,800	10,900	20,200	500	20,700	2,498	683	29.0
1988-9 ¹			18,900	15,047	200	34,200	3,500	2,000	3,200	11,800	20,500	3,400	23,900	2,424	607	24.8
1989-90 ⁴			10,300	13,610	700	24,600	3,500	2,000	3,500	10,000	19,000	1,500	20,500	2,044	483	28.2

¹ Preliminary. ² Includes total loans. ³ Uncommitted, gov't only. ⁴ Forecast. ⁵ Includes residual; approximates total feed use. Source: Economics Research Service, U.S.D.A.

T.571

Production of Rye in the United States In Thousands of Bushels

Year	Illinois	Indiana	Kansas	Michigan	Minnesota	Georgia	Nebraska	North Dakota	Ohio	Oklahoma	Oregon	South Dakota	Virginia	Texas	Wisconsin	South Carolina
1980	368	182	210	504	1,900	1,995	666	1,470	231	816	150	4,030	325	494	368	616
1981	336	234	252	532	2,883	2,730	924	2,560	150	680	150	3,220	364	475	408	726
1982	299	260	240	522	3,300	1,470	1,269	2,400	155	736	116	4,680	364	504	300	621
1983	336	270	220	600	4,960	1,470	1,265	4,320	210	780	100	8,740	312	450	300	320
1984	308	336	312	588	6,650	1,760	1,392	5,400	175	704	140	10,800	378	240	216	546
1985	256	308	300	651	3,300	2,070	1,242	2,640	172	828	111	4,440	312	400	234	532
1986	210	280	210	713	1,600	1,785	1,035	4,250	175	840	200	4,440	364	190	168	391
1987	144	297	270	640	1,200	1,540	1,150	5,115	180	360	120	5,040	435	150	100	528
1988	140	330	130	650	920	1,890	1,375	1,350	185	720	75	2,250	560	150	120	720
1989 ¹	312	204	80	660	1,088	1,610	600	1,064	155	532	75	3,240	264	126	360	644

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.572

Month-End Open Interest of Rye Futures in Winnipeg In 20 Tonne Units

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	3,739	3,622	3,219	3,583	4,426	3,008	2,268	4,286	5,250	4,052	3,773	3,244
1983	3,227	3,628	3,097	4,625	4,834	4,935	7,883	7,915	3,665	4,494	3,110	3,054
1984	2,224	4,566	3,980	3,883	3,731	3,023	2,888	5,430	7,098	6,320	5,894	4,158
1985	4,267	4,826	4,175	4,227	3,893	3,919	4,031	5,022	4,872	5,478	4,289	3,786
1986	4,287	4,335	3,302	4,211	3,039	2,553	2,900	3,447	3,377	2,862	2,437	2,032
1987	2,463	1,906	2,084	3,006	4,441	3,853	2,595	4,139	3,518	3,542	2,876	2,437
1988	2,456	2,833	2,919	2,211	2,738	3,969	3,463	3,650	3,533	3,231	2,500	2,189
1989	2,636	2,240	1,552	1,707	1,740	2,224	1,970	3,355	2,753	3,515	2,876	2,618

Source: Winnipeg Commodity Exchange

T.577

U.S. Rye Crop Production Reports and CCC Operations In Thousands of Bushels

Year Begin. June 1	Official Crop Reports				National Average		Placed Under Loan	Direct Pur- chases	Placed Under Loan Total	Acqu- ired by CCC	Total Stocks Ending June 30			
	July 1	Aug. 1	Dec. 1	Final	Support Rate \$ Per Bushel	% of Parity					Ending Carry- over ¹	CCC Own ²	Privately Owned ³ Under Loan ⁴	Other
1979-0	23,638	23,736	24,549	21,887	1.79	49	—	—	1,900	—	8,973	—	—	—
1980-1	15,784	16,189	16,265	15,958	1.91	51	—	—	450	—	11,970	—	—	—
1981-2	16,743	17,083	18,621	18,187	2.04	48	—	—	500	—	4,030	—	—	—
1982-3	20,119	19,924	20,817	19,533	2.17	48	—	—	1,700	1,400	3,012	—	—	—
1983-4	26,058	25,698	28,152	27,116	2.25	47	—	—	5,300	4,900	5,822	1,200	—	—
1984-5	29,903	30,184	32,392	32,463	2.17	45	—	—	10,100	9,900	11,300	5,100	—	—
1985-6	19,255	19,298	20,637	20,637	2.17	47	—	—	4,100	2,400	19,800	16,000	—	—
1986-7	—	17,892	19,498	19,522	1.63	38	—	—	5,900	1,800	21,900	15,500	—	—
1987-8 ²	—	19,098	19,718	19,818	1.55	38	—	—	8,800	—	18,600	15,800	—	—
1988-9 ²	—	15,062	—	15,047	1.50	—	—	—	—	—	18,900	—	—	—
1989-90 ²	—	13,610	—	—	1.40	—	—	—	—	—	10,300	—	—	—

¹ Old-crop rye under loan at end of crop year. ² Preliminary. ³ Derived by subtracting CCC stocks & loans outstanding from ending carryover. ⁴ Includes previous crops under resale. Source: Economic Research Service, U.S.D.A. T 573



RYE

Average Price of Cash Rye No. 2 at Minneapolis In Cents per Bushel

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
1980-1	297	287	292	307	344	340	352	363	389	387	396	394	346
1981-2	352	330	356	371	374	334	394	414	375	426	410	397	378
1982-3	342	276	286	260	261	256	251	246	231	250	244	232	261
1983-4	227	256	265	256	254	252	251	245	250	260	258	244	252
1984-5	227	209	207	206	221	227	231	230	235	236	235	248	226
1985-6	210	215	223	233	248	259	246	228	226	226	219	178	226
1986-7	156	151	160	168	173	202	195	185	185	173	196	163	176
1987-8	165	165	175	198	199	189	185	189	175	167	181	278	189
1988-9	266	264	264	247	269	280	268	268	264	270	257	201	260
1989-90	206	200	214	235	229	225							

Source: Economic Research Service, U.S.D.A.

T.575

High, Low & Closing Prices of May Rye Futures in Winnipeg In Canadian Dollars per Tonne

Year of Delivery	Year Prior to Delivery												Life of Delivery Range	
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May		
1982	High	167.00	181.50	215.90	233.50	218.00	195.60	187.00	185.20	187.30	171.00	178.00	180.90	233.50
	Low	151.20	154.90	183.50	211.20	193.00	181.50	169.80	168.70	169.50	158.50	160.00	163.40	151.20
	Close	151.20	181.50	215.90	217.70	194.20	183.40	171.00	182.00	169.50	160.30	170.00	165.50	—
1983	High	162.00	162.00	152.50	150.50	139.50	140.20	133.00	126.30	123.20	123.00	130.00	126.00	162.00
	Low	162.00	152.00	138.00	133.80	128.00	129.00	121.00	119.80	116.40	115.30	118.10	116.50	115.30
	Close	162.00	152.50	145.00	133.80	128.20	130.20	121.00	123.10	120.50	122.70	118.70	122.50	—
1984	High	—	—	174.00	176.00	173.30	165.80	158.30	150.00	141.00	140.00	139.30	157.00	176.00
	Low	—	—	154.40	169.50	154.40	156.60	146.00	140.70	125.10	129.20	134.00	131.50	125.10
	Close	—	—	170.10	170.50	162.50	157.70	148.90	141.00	129.30	138.20	135.50	151.50	—
1985	High	—	—	156.00	158.70	156.90	157.20	154.80	145.40	142.30	134.60	133.80	128.80	158.70
	Low	—	—	152.20	152.90	152.20	153.00	145.20	143.00	132.00	132.30	128.30	122.80	122.80
	Close	—	—	153.00	157.70	152.70	154.10	145.20	143.00	132.60	133.70	128.30	122.80	—
1986	High	—	—	131.70	130.80	128.00	132.50	134.00	126.90	118.40	107.00	102.20	116.00	131.70
	Low	—	—	121.50	124.50	121.40	125.00	126.30	119.50	106.60	100.70	91.70	96.30	91.70
	Close	—	—	128.30	124.50	125.00	132.10	126.30	119.70	107.50	102.50	100.50	107.20	—
1987	High	—	—	101.00	102.50	105.00	104.50	103.00	98.70	96.00	89.50	88.20	101.20	105.00
	Low	—	—	100.50	97.40	99.50	100.80	96.00	94.20	82.70	83.00	82.30	85.50	82.30
	Close	—	—	101.00	100.40	101.00	103.10	98.20	95.70	84.70	84.50	85.40	97.50	—
1988	High	—	—	106.50	107.00	107.50	104.70	104.70	108.40	110.30	111.00	107.50	160.00	160.00
	Low	—	—	98.00	104.00	100.00	99.40	102.00	103.00	104.20	104.50	103.50	103.40	98.00
	Close	—	—	106.50	104.80	101.20	103.80	103.00	104.20	110.10	106.50	103.50	160.00	—
1989	High	—	—	168.50	171.00	162.30	165.00	160.50	161.00	158.10	159.00	147.50	142.00	171.00
	Low	—	—	156.00	157.00	157.00	156.00	157.50	151.30	150.50	150.00	128.50	128.00	128.00
	Close	—	—	157.50	159.90	161.50	158.80	158.80	153.50	156.30	150.50	128.50	132.00	—
1990	High	—	—	—	—	132.00	130.00	127.00						
	Low	—	—	—	—	129.50	124.00	119.50						
	Close	—	—	—	—	130.30	124.00	125.50						

Source: Winnipeg Commodity Exchange

T.576

Rye Under Price Support Through the End of the Month (Cumulative Total from Current Season's Crop) In Thousands of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1981-2	36	264	359	398	424	439	448	456	456	456	456	456	
1982-3	7	344	771	1,008	1,096	1,193	1,324	1,369	1,588	1,709	1,711	1,712	
1983-4	83	1,819	2,228	3,533	3,885	4,199	4,577	4,862	5,141	5,228	5,254	5,256	
1984-5	68	3,581	6,661	8,224	8,653	8,911	9,655	9,830	9,996	10,078	10,066	10,070	
1985-6	567	1,769	2,836	3,516	3,728	3,816	3,955	3,996	4,012	4,060	4,074	4,078	
1986-7	147	1,337	3,249	4,627	5,022	5,140	5,383	5,594	5,722	5,879	5,878	5,888	5,892
1987-8	—	1,237	4,472	5,621	6,498	6,690	7,282	8,164	8,485	8,579	8,605	8,607	8,604
1988-9	—	158	225	239	246	279	301	306	323	325	325	325	325
1989-90	325	352	490										

Source: U.S. Department of Agriculture

T.578

Salt

U.S. salt production was estimated at 39.4 million tonnes in 1989, down marginally from 1988. The Bureau of Mines estimated that producers either sold or consumed in their own chemical processes 39.1 million tonnes, up from 38.9 million in 1988. Apparent consumption fell to 42.8 million tonnes from 43.5 million. Net imports of about 5 million tonnes and changes in inventories made up the difference between production and consumption.

The chemical industry consumes about half the salt sold or used by consumers. Approximately 95 percent of the salt used by chemicals plants goes into chlorine and caustic soda. According to the Chlorine Institute, 48 percent of the chlorine by volume goes into chemicals, 17 percent into plastics, 15 percent into chlorinated solvents, and 5 percent into water and waste treatment. While 15 percent traditionally went into production of pulp and

paper, that was expected to decline in the 1990s, because of concern about chlorinated dioxins and other chlorinated organic compounds in paper mill effluents. Mills were switching to other bleaching methods, while some consumers were switching to unbleached papers.

Caustic soda can be produced from sodium carbonate. Natural sodium carbonate deposits, called trona, can be used for this purpose, and the plants in the Gulf Coast and Pacific Northwest announced expansion plans to meet that anticipated need.

Salt for highway deicing accounts for about 25 percent of annual demand. Other major markets include industry, agriculture, food processing, and water treatment.

World salt production was estimated at 205.1 million tonnes in 1989, up from 203.8 million in 1988.

World Production of All Salt In Thousands of Short Tons

Year	Brazil	Canada	China	France	West Germany	India	Italy	Japan	Mexico	Netherlands	Poland	Spain	United Kingdom	United States	USSR	World Total
1982	4,105	8,752	18,060	7,389	12,951	7,763	4,920	1,065	6,130	3,517	4,251	3,626	8,418	37,910	17,416	181,071
1983	4,615	9,482	17,780	7,661	11,980	7,730	4,618	1,015	6,287	3,444	3,996	3,481	6,957	34,605	17,857	175,099
1984	4,990	11,282	17,950	7,880	13,461	8,520	4,385	1,053	6,798	4,050	5,193	3,735	7,856	39,256	18,200	190,070
1985	3,008	11,117	15,924	7,841	14,407	10,889	4,129	1,300	7,129	4,579	5,363	3,571	7,877	40,102	17,747	191,628
1986 ¹	3,900	11,389	19,070	7,808	14,443	11,153	4,444	1,510	6,533	4,148	6,006	3,400	7,800	36,703	17,700	194,720
1987 ²	3,900	11,000	19,800	7,890	14,500	12,102	4,240	1,540	6,600	4,386	6,799	3,400	7,800	36,532	17,700	195,594
1988 ²		11,736	24,250	8,720	14,997	9,262	4,960		7,678		6,280		7,800	38,940	17,100	203,848
1989 ²		11,800	25,000	8,700	15,000	9,200	5,000		7,700		6,300		7,800	39,100	17,000	205,000

¹ Preliminary. ² Estimate. Source: Bureau of Mines

T.581

Salt Statistics of the Salt Industry in the United States In Thousands of Short Tons

Year	Net Import Reliance as a % of Apparent Consumption	Avg. Value F.O.B. Mine Vacuum & Open Pan \$ Ton	Sold or Used by Producers											Imports for Consumption	Exports		Apparent Consumption	
			Evaporated (Mfg.)				Rock Salt				Value ³ Mil- lion \$	Total Salt	Salt in Brine		Total Salt	Total		To Canada
			Bulk		Total Evaporated	Rock Salt												
			Open & Vacuum Pans	Solar		Pressed Blocks	Bulk	Pressed Block	Total Salt Rock									
1982	11	86.72	3,379	2,478	447	6,305	13,431	72	13,503	18,086	37,894	671.4	5,451	1,001	957	42,344		
1983	18	87.39	3,309	1,962	408	5,680	9,867	73	9,941	18,952	34,573	597.1	5,997	517	475	40,053		
1984	15	92.78	3,322	2,345	542	6,209	13,276	71	13,348	19,669	39,225	675.1	7,545	820	792	45,950		
1985	14	92.66	3,604	2,666	455	6,725	14,000	70	14,690	19,107	40,067	739.6	6,207	904	883	45,370		
1986	12	91.27	3,583	2,562	465	6,610	11,927	67	12,598	17,920	36,663	665.4	6,665	1,165	1,091	42,163		
1987 ¹	11	94.21	3,776	2,627	487	6,890	11,331	73	11,965	18,124	36,493	684.2	5,716	541	477	41,668		
1988 ²	11	97.71									38,940		5,474	884		43,530		
1989 ²	8	93.50									39,100		5,000	1,300		42,800		

¹ Preliminary. ² Estimate. ³ Values are f.o.b. mine or refinery & do not include cost of cooerage or containers. Source: Bureau of Mines T.582

Salt Sold or Used by Producers in the U.S. by Classes & Consumers or Uses In Thousands of Short Tons

Year	Chemical ⁴	Tanning Leather	Textile Dyeing	Meat Packers ²	Canning	Baking	Agri-Distribution	Feed Dealers	Feed Mfgs.	Rubber	Oil	Paper & Pulp	Metal Processing	Water Treatment	Grocery Stores	Water Conditioning Distal.	Ice Control &/or Stabilization
1982	18,861		165	550	204	109		967	699	51	1,035	209			1,053		
1983	19,950		171	531	211	114		977	628	45	918	274			987		
1984	19,701		135	436	242	124		923	590	41	860	307			859		
1985	21,204	137	186	415	263	126	387	863	412	36	965	311	382	553	901	888	11,180
1986	19,801	152	226	436	271	134	286	940	388	133	627	307	304	525	946	1,028	10,541
1987 ¹	18,715	124	237	452	296	158	302	995	416	145	597	387	311	392	1,007	1,063	9,878

¹ Preliminary. ² Prior to 1984, data also includes tanners & casing mfg. ³ Also service companies. ⁴ Chloralkali producers & other chemical. Source: Bureau of Mines

T.583

Sheep & Lambs

U.S. production of lamb and mutton in the first half of 1989 was up 2 percent from the same 1988 period, due to increased numbers slaughtered. Production levels for 1990 were uncertain, according to USDA. If mature sheep slaughter continued at high rates, production would decline more than was projected. First-quarter lamb and mutton production was forecast to be 85 million pounds, down from 87 million in 1989.

Second-quarter 1990 production was expected to increase to 82 million pounds from 81 million in the same 1989 quarter, because the spring religious holidays fall later in the year in 1990. Third and fourth-quarter production was likely to remain about the same as in 1989.

Per capita consumption of lamb and mutton in the U.S. was estimated at 1.4 pounds in 1989.

In 1989, the U.S. ranked among the major sheep-producing countries, with an inventory of 10.8 million head. Australia was the leading producer with 174 million head, followed by the USSR. China's sheep population was approximately 108 million head, while New Zealand's was 65 million.

Australia was expected to export 6.5 million head of live sheep and 195,000 tonnes of lamb and mutton in 1989. New Zealand was likely to ship 849,000 live sheep and 478,000 tonnes of lamb. Middle Eastern countries, primarily Saudi Arabia, are the major live sheep importers.

World Sheep Numbers in Specified Countries In Millions of Head

Year	Argentina	Australia	Bulgaria	China ⁴	France	India	Italy	New Zealand	Romania	Spain ²	South Africa	Turkey	United Kingdom	United States	Uruguay	USSR	World
1982	29.0	138.0			13.1	48.0		69.9		17.1	33.6	49.6	22.2	13.0	23.2	142.4	671
1983	33.5	133.2	10.8		12.1	49.5	9.3	70.3	16.9	17.5	32.0	47.5	22.9	12.1	23.3	142.2	669
1984	33.9	139.2	11.0		11.9	51.1	10.7	70.3	18.5	17.6	31.3	47.7	23.3	11.5	23.3	145.3	681
1985	29.4	149.7	10.5		11.6	52.8	11.1	69.7	18.6	17.5	30.3	47.8	23.9	10.4	22.8	142.9	686
1986	29.2	155.6	9.7		11.2	54.5	11.3	67.9	18.6	17.3	29.5	47.0	24.5	10.0	24.8	140.9	690
1987	29.0	158.8	9.6		10.6	55.5	11.5	69.2	18.8	17.6	29.8	43.5	26.0	10.3	25.7	142.2	696
1988	29.2	162.5	8.9		10.4	51.7	11.5	64.2	18.9	20.3	29.6	40.0	27.8	10.8	27.4	140.8	694
1989 ¹	29.3	174.0	8.7		10.2	53.5	11.5	64.6	19.4	22.5	30.9	34.9	29.0	10.8	28.4	140.7	709
1990 ³	29.4	183.3	8.7		10.0	55.2	11.5	60.8	19.5	24.5	32.5	31.0	30.0	10.5	28.4	140.7	717

¹ Preliminary. ² One year old & older. ³ Estimate. ⁴ Mainland. Source: Foreign Agricultural Service, U.S.D.A.

T.584

Salient Statistics of Sheep & Lambs in the United States Avg. Lv. Weight

Year	On Hand Jan. 1 Mil. Head	Lambs Saved	In Shipments	Marketings ² Ths. Head	Slaughter Farm Total ⁴	Production Mil. Lbs.	SH & LB Federally Inspected in Ths.	Value of Production	Cash Receipts ³	Value of Home Consumption Millions of Dollars	Gross Income	Farm Value (1/1) All \$ per Head
1982	13.0	8.6	2,115	9,482	195 6,644	785.4	6,273	355.7	445.1	13.0	458.1	739.6 57.00
1983	12.1	8.2	1,838	8,924	171 6,790	767.6	6,412	356.7	426.4	10.6	437.0	628.6 51.80
1984	11.5	7.8	1,859	8,828	141 6,900	694.1	6,549	376.5	466.5	11.1	477.7	598.9 58.10
1985	10.4	7.4	1,693	8,047	135 6,300	694.2	5,976	427.8	503.2	12.8	516.0	637.9 61.10
1986	10.0	7.4	1,792	7,394	128 5,762	721.5	5,464	443.9	483.8	12.7	496.5	673.0 67.40
1987 ¹	10.3	7.2	1,991	7,433	112 5,312	741.8	5,042	498.9	560.4	12.0	572.4	782.1 75.70
1988 ¹	10.8	7.2			5,402		5,122					970.5 90.00
1989 ⁵	10.8						5,295					889.8 82.40

¹ Preliminary. ² Excludes interfarm sales. ³ Includes receipts from marketings & from sales of farm slaughter meats. ⁴ Includes all commercial & farm. ⁵ Estimate. Source: Crop Reporting Board, U.S.D.A.

T.585

Sheep and Lambs on Farms in the United States, January 1 -Thousands of Head

Year	Minnesota	California	Colorado	Idaho	Missouri	Montana	New Mexico	Ohio	South Dakota	Texas	Utah	Wyoming	Iowa	Total ²	Total ¹ Stock
1982	335	1,210	710	498	133	616	615	313	750	2,400	636	1,130	485	12,997	11,433
1983	300	1,115	750	429	126	560	610	295	680	2,225	590	1,060	457	12,140	10,479
1984	225	1,115	690	383	128	564	589	265	740	1,970	568	1,090	425	11,487	9,769
1985	255	1,065	675	313	123	515	538	265	639	1,810	515	860	360	10,443	8,847
1986	213	1,065	600	320	101	423	525	275	540	1,810	484	819	350	9,983	8,491
1987	237	980	690	314	110	523	480	300	605	1,930	464	775	375	10,334	8,826
1988 ³	258	990	755	324	103	530	489	270	610	1,960	478	865	405	10,784	9,140
1989 ³	263	940	825	287	125	568	516	246	590	1,900	503	837	415	10,802	9,189

¹ Stock sheep & lambs; does not include sheep & lambs on feed for market. ² Includes sheep & lambs on feed for market and stock sheep & lambs. ³ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.586

SHEEP AND LAMBS

Average Wholesale Price of Lambs at Omaha In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	53.50	58.50	59.75	58.75	59.00	53.00	51.12	49.25	48.50	51.75	56.00	57.75	54.74
1984	60.50	58.75	58.75	60.50	62.25	61.75	61.50	62.76	63.58	63.35	62.98	60.08	61.39
1985	62.13	66.92	67.75	69.50	74.25	72.56	71.98	71.42	68.94	63.32	62.50	60.62	68.41
1986	61.75	68.50	67.00	68.00	80.75	74.71	70.50	66.16	62.45	57.23	65.17	72.70	67.54
1987 ¹	77.25	74.62	82.50	85.50	89.94	85.42	74.02	70.86	67.14	66.00	63.50	72.44	75.77
1988 ¹	78.17	79.38	79.50	N.A.	75.17	58.80	57.55	54.90	58.35	60.44	61.90	64.75	60.71
1989 ¹	66.25	66.83	69.50	74.50	73.75	68.56	65.73	63.31	56.67	58.33	55.03	56.38	64.57

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.587

Federally Inspected Slaughter of Sheep & Lambs in the United States In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	509	457	616	509	508	508	497	585	595	580	510	536	6,412
1984	540	548	586	592	558	500	511	561	528	588	524	514	6,549
1985	544	473	564	512	494	423	485	496	480	554	460	490	5,976
1986	507	441	524	477	417	406	432	426	495	495	401	442	5,464
1987 ¹	418	390	432	477	363	407	411	400	459	446	399	439	5,042
1988 ¹	380	408	535	388	414	413	387	442	452	437	418	447	5,122
1989 ¹	418	415	505	393	435	423	398	476	440	468	467	457	5,295

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.588

Cold Storage Holdings of Lamb and Mutton, on 1st of Month In Thousands of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	8,653	7,682	7,673	8,218	8,331	8,839	8,691	7,717	8,815	8,622	9,092	10,270
1984	10,701	8,312	7,542	8,057	9,123	8,839	8,678	8,404	8,026	8,889	8,403	7,890
1985	7,066	7,339	6,840	6,547	7,644	8,068	8,931	9,193	9,541	9,237	10,033	12,525
1986	12,766	11,615	13,813	11,615	12,754	12,742	14,068	14,318	15,459	14,450	14,641	13,843
1987	12,603	11,550	13,565	13,595	13,248	13,997	12,007	9,311	8,468	6,978	7,036	8,637
1988	7,949	8,069	6,190	7,056	7,639	8,018	8,738	8,537	7,253	6,827	6,396	6,001
1989 ¹	6,115	7,267	6,487	6,947	6,135	6,827	7,858	7,841	7,731	7,057	7,707	7,990
1990 ¹	7,554											

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.589

Average Price Received by Farmers for Sheep in the U.S. In Dollars per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average ¹
1983	21.30	21.90	20.80	17.40	15.20	14.50	16.20	15.50	12.80	13.80	15.10	17.00	15.70
1984	18.20	19.80	18.70	16.30	13.00	13.80	16.80	17.30	15.90	15.20	18.10	24.30	16.40
1985	26.50	26.50	26.20	24.70	23.00	22.00	27.20	26.10	25.30	21.50	23.60	26.60	23.90
1986	29.90	26.10	22.80	24.90	24.10	25.90	26.70	26.40	27.30	25.50	26.10	29.30	25.60
1987	31.60	32.20	30.70	28.60	28.30	25.70	28.50	32.00	32.50	31.50	30.90	32.30	29.50
1988	34.70	30.10	29.70	26.00	23.90	23.20	25.00	25.30	25.00	25.30	27.80	29.10	25.60
1989 ²	34.20	34.50	30.30	25.40	21.60	22.20	24.60	23.40	23.20	22.70	29.50	31.10	26.90
1990 ²	29.20												

¹ Weighted average by quantities sold. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.590

Average Price Received by Farmers for Lambs in the U.S. In Dollars per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average ¹
1983	55.50	60.50	63.20	61.50	59.60	54.20	49.80	48.30	47.50	50.90	55.80	58.90	53.90
1984	60.00	59.20	58.20	60.60	59.50	57.50	58.60	61.00	61.80	62.40	63.30	61.90	60.10
1985	63.40	66.70	68.00	68.40	72.40	69.70	70.80	70.80	70.20	67.80	66.00	62.70	67.70
1986	63.90	67.00	64.90	69.10	76.30	74.00	71.90	69.50	67.60	62.50	69.30	73.20	69.00
1987	76.60	76.00	80.80	86.10	90.10	83.50	78.70	76.10	76.80	71.90	65.70	72.80	77.60
1988	80.70	80.40	80.20	74.80	72.60	60.20	60.00	59.80	64.20	66.20	66.30	68.60	69.10
1989 ²	67.40	68.40	72.50	75.20	73.10	70.60	68.60	66.60	65.90	62.00	58.70	59.00	67.30
1990 ²	57.40												

¹ Weighted average by quantities sold. ² Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.591

Silver

U.S. mine production of silver rose by 2.9 percent in 1989 to 54.97 million ounces, according to a Bureau of Mines estimate. Output increased, while average cash prices dropped by \$1.05 to \$5.50/oz. Lower prices forced some pure silver mines to close or curtail operations. Gains in production resulted from the opening of several mines that yield large amounts of by-product silver and from increased heap-leaching capacity at existing gold and copper mines.

Mine output of by-product silver was expected to increase dramatically in 1990, reflecting full production at two massive zinc-lead-silver mines that opened in Alaska in 1989. One of them, Greens Creek on Admiralty Island, west of Juneau, was expected to produce 6.4 million ounces of by-product silver a year and could overtake the McCoy/Cove gold mine in Nevada as the nation's largest silver source. McCoy/Cove was projected to produce 6.5 million ounces of silver in 1990, though two-thirds of its revenue was expected to be derived from production of about 330,000 ounces of gold.

Although both copper and zinc prices had retreated from their all-time highs set in 1988 and 1989, respectively, prices for those metals remained at high levels as 1990 began. Since two-thirds of the world's estimated 1989 silver reserves of 9 billion ounces was associated with copper or lead-zinc ores, silver production was expected to be largely independent of silver prices in 1990.

U.S. apparent silver demand increased by almost 30 percent in 1989 to 172.7 million ounces from 133.2 million a year earlier. Most of the gain apparently resulted from an increase in investors' inventories, the bulk of which went into COMEX stocks, which rose 37 percent to end the year at 238.8 million ounces. It was estimated that 1989 U.S. industrial usage of silver approximated the 120 million ounces used in 1988. Coinage rose to 9.97 million ounces from 8.84 million.

The U.S. imported 108.7 million ounces in 1989,

up 22.6 percent from 88.6 million a year earlier. Although the U.S. is a net importer of silver, the Bureau of Mines did not estimate net reliance on imports as a percent of consumption. Unreported changes in investor stocks preclude calculating a meaningful ratio.

About 28.6 million ounces of silver were recovered from old scrap in 1989, equal to 17 percent of apparent bullion demand, while 49.2 million ounces were recovered from new scrap generated during manufacturing. According to reports from U.S. refiners and fabricators, 60 percent of the silver they handled in 1989 went into photographic products; 20 percent to electrical and electronic uses; 10 percent to electroplate, sterlingware and jewelry; 8 percent to brazing alloys; and 5 percent was used in other products.

World mine production of silver was estimated at 450.1 million ounces, up from 443.1 million in 1988. Mexico remained the largest producer with 75.9 million ounces, about unchanged from 1988. Peru held on to second place with 56.9 million ounces, up 14 percent from 1988, despite political strife and continued labor problems at Peruvian mines.

As required by the Treasury Department's fiscal 1989 appropriations bill, the government sold 2.5 million ounces of surplus silver in 1989 at public auctions, the first such sales since 1981. A total of 7.5 million ounces was to be auctioned off by the end of fiscal 1991. At the end of 1989, the Treasury held 31.5 million ounces in Mint stocks. Department of Defense stocks totaled 2.89 million ounces.

Futures Markets

Silver is traded on the New York Commodity Exchange (COMEX), which also has options on silver futures, and on the Chicago Board of Trade, the Mid-America Exchange, and in Winnipeg. The London Metal Exchange ended silver trading in June 1989.

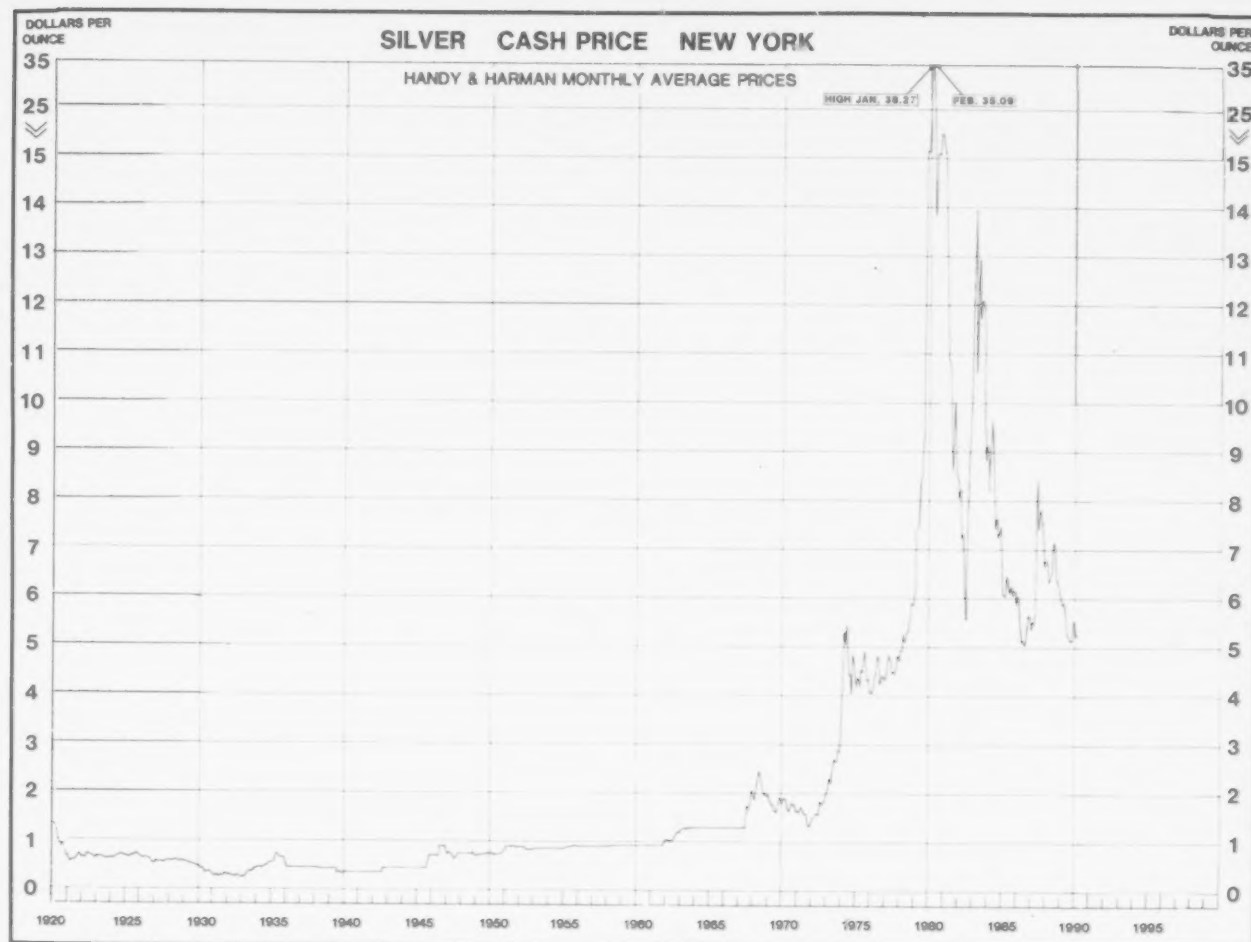
World Mine Production of Silver, by Selected Countries In Millions of Fine Ounces (Troy Ounces)

Year	Argentina	Australia	Bolivia ¹	Canada	West Germany	Honduras	Japan	Mexico	Morocco	Peru	Poland	United States	USSR ²	Yugoslavia	Zaire (Congo)	World Total ²
1976	2.25	25.03	5.34	41.20	1.03	3.18	9.30	42.64	2.05	35.58	17.8	34.33	44.0	4.63	2.47	316.4
1977	2.45	27.53	5.81	42.24	1.06	2.82	9.60	47.03	2.82	39.73	20.7	38.17	45.0	4.68	2.73	331.3
1978	2.16	26.12	6.29	40.73	.80	2.79	9.66	50.78	3.13	37.02	21.9	39.39	46.0	5.13	4.39	345.0
1979	2.21	26.76	5.74	36.87	1.04	2.43	8.68	52.17	3.28	39.25	22.6	37.90	46.0	5.21	3.89	348.1
1980	2.36	24.65	6.10	33.34	1.06	1.77	8.60	50.05	3.15	44.42	24.63	32.33	46.0	4.79	2.73	342.8
1981	2.52	23.91	6.39	36.30	1.13	1.82	9.01	52.92	2.12	46.94	20.58	40.68	46.5	4.44	2.58	361.6
1982	2.68	29.16	5.47	42.25	1.28	2.10	9.84	59.18	2.64	41.96	21.12	40.25	46.9	3.34	1.75	371.2
1983	2.50	33.21	6.03	35.56	1.17	2.59	9.88	63.61	2.85	50.48	21.80	43.43	47.2	3.99	1.29	387.7
1984	1.98	31.26	4.56	42.66	1.23	2.70	10.40	75.34	2.41	53.08	23.92	44.59	47.4	4.05	1.23	413.9
1985	2.17	34.91	3.58	38.48	1.09	2.77	10.92	73.17	2.73	58.23	26.72	39.43	47.9	5.02	1.52	422.1
1986	2.13	32.88	3.06	34.98	.88	2.75	11.29	75.20	1.57	61.92	26.65	34.52	48.2	5.69	1.50	415.9
1987 ³	2.00	32.76	3.80	40.18	1.74	2.00	9.04	75.00	1.41	66.00	26.50	39.79	48.2	4.85	1.40	429.1
1988 ²		33.0		48.0				70.0		61.5		51.5	48.2			443.1
1989 ²				41.8				75.9		56.9		55.0	48.2			450.1

¹ Exports. ² Estimate. ³ Preliminary. Source: Bureau of Mines

T.594

SILVER



Average Price of Silver in New York (Handy & Harman) In Cents per Troy Ounce (.999 Fine)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1973	201.7	223.6	230.9	220.7	240.1	262.1	270.6	263.7	267.5	288.6	286.0	313.7	256.0
1974	363.7	535.9	532.6	503.6	543.2	489.6	441.6	443.1	404.9	483.0	469.4	439.1	470.8
1975	419.3	437.0	434.5	420.9	453.8	448.9	470.5	492.5	451.6	432.9	433.2	408.5	442.0
1976	406.3	408.6	418.9	435.1	448.9	481.2	478.0	423.7	429.5	422.5	437.3	434.7	435.4
1977	440.9	452.7	484.2	477.7	469.2	444.3	449.8	444.4	453.9	476.3	482.8	470.6	462.3
1978	493.4	493.6	526.8	511.6	512.0	531.6	533.1	549.5	557.5	591.8	586.5	593.0	540.0
1979	625.5	741.7	745.4	749.3	836.6	853.8	913.5	933.4	1,395.9	1,678.1	1,655.3	2,179.3	1,109.0
1980	3,827.2	3,508.5	2,413.3	1,384.1	1,253.3	1,574.8	1,606.0	1,589.7	2,014.4	2,018.1	1,864.8	1,639.3	2,063.3
1981	1,475.2	1,306.5	1,236.9	1,091.7	1,084.8	1,000.1	863.1	892.3	1,003.6	925.1	854.7	843.2	1,048.1
1982	803.1	826.8	721.3	731.1	667.4	557.8	649.7	713.6	872.5	948.8	991.8	1,058.6	795.0
1983	1,239.6	1,396.4	1,061.9	1,169.4	1,295.3	1,174.9	1,208.8	1,209.6	1,191.5	984.1	883.7	912.1	1,143.9
1984	818.2	912.7	965.1	922.1	897.2	874.4	741.6	761.3	726.3	731.7	748.9	669.4	814.1
1985	609.8	607.0	601.4	645.8	628.1	617.2	610.4	624.7	605.4	618.8	613.4	588.8	614.2
1986	605.3	587.4	503.9	522.9	511.5	515.3	504.9	521.8	568.3	566.7	559.6	536.4	547.0
1987	552.9	548.8	568.2	742.8	843.9	741.1	767.8	784.7	759.1	755.8	666.2	679.0	700.9
1988	673.25	632.48	641.28	647.83	654.26	703.68	714.65	670.80	636.48	628.45	627.53	610.83	653.46
1989	597.17	589.08	592.98	579.08	544.70	528.02	523.65	517.93	513.30	513.30	546.53	554.28	550.0

Source: Handy & Harman

T.595

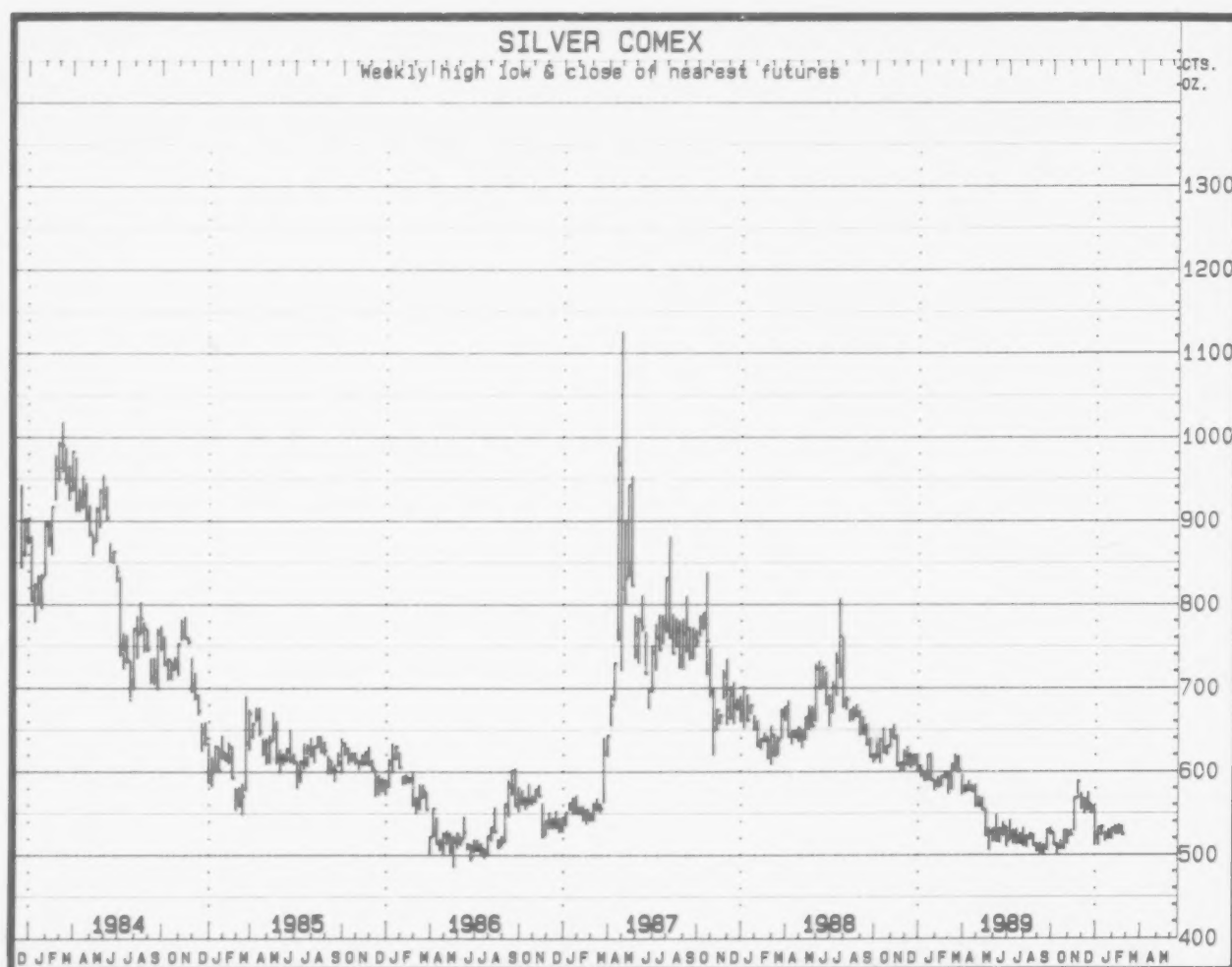
SILVER

World² Silver Consumption In Millions of Troy Ounces

Year	Industrial Uses							Coinage									
	Canada	France	W. Germany	India	Italy	Japan	Un. Kingdom	United States	World Total	Canada	France	W. Germany	Austria	Mexico	United States	World Total	World Total
1973	8.6	14.3	64.7	13.0	41.5	69.0	31.0	195.9	477.8	1.4	.1	9.5	6.6		.9	29.2	507.0
1974	9.6	15.5	59.9	15.0	38.6	46.5	25.0	177.0	409.4	8.9	.1	8.8	5.6		1.0	27.9	436.9
1975	10.6	21.2	38.9	13.0	28.9	46.4	28.0	157.7	376.8	10.4	5.2	4.3	13.4	—	2.7	38.8	415.6
1976	9.5	19.0	50.8	18.0	32.1	60.7	28.0	170.5	437.5	8.4	6.7	2.9	6.9	—	1.3	29.7	467.2
1977	8.8	20.6	59.5	17.6	33.8	63.2	32.2	153.6	433.6	.3	6.9	2.6	3.0	4.2	.4	23.4	457.0
1978	9.0	22.2	47.2	20.0	41.8	64.8	29.0	160.2	442.6	.3	11.1	3.6	4.5	6.3	.1	36.3	478.9
1979	8.1	21.5	46.1	19.0	31.1	66.4	26.5	157.2	434.2	.3	7.7	3.7	5.0	5.0	.1	27.8	462.0
1980	8.7	20.2	29.1	19.0	21.8	61.7	20.5	124.7	354.5	.2	—	—	4.3	6.1	.1	13.7	368.2
1981	9.4	20.6	33.8	19.0	12.9	59.8	18.5	116.6	344.0	.2	—	—	3.0	—	—	9.0	353.0
1982	9.0	18.6	35.9	16.1	9.6	63.2	20.0	118.8	345.4	.3	—	—	4.0	—	2.5	12.8	358.2
1983	8.9	18.6	30.3	12.9	9.0	71.5	18.0	116.3	340.7	.4	—	—	2.0	—	11.2	18.2	358.9
1984	9.0	17.0	30.1	16.1	11.6	78.7	19.0	114.8	353.3	.3	—	—	—	2.0	3.4	8.7	362.0
1985	9.1	18.0	31.7	20.9	4.6	75.3	19.0	118.6	357.2	.3	—	—	—	3.0	4.4	12.7	369.9
1986	9.6	16.4	36.9	22.5	14.5	89.5	20.5	121.7	394.7	2.0	—	—	1.0	1.7	7.4	26.0	420.7
1987	10.4	19.6	40.5	18.5	24.4	92.2	21.5	118.6	409.6	3.2	—	—	2.0	.5	15.1	31.0	440.6
1988 ¹	10.9	22.5	47.2	22.5	18.0	98.3	22.3	120.0	431.5	1.0	—	—	6.5	2.0	7.6	30.1	461.6

¹ Preliminary. ² Non-communist areas only. Source: Handy & Harman

T.597



SILVER

U.S. Mine Production of Recoverable Silver In Thousands of Troy Ounces

Year	Arizona	California	Colorado	Idaho	Oregon	Missouri	Montana	Nevada	New Mexico	New York	Tennessee	So. Dakota	Utah	Alaska	Total
1980	6,268	49	2,987	13,695	1	2,357	2,024	940	N.A.	21	N.A.	51	2,203	8	32,329
1981	8,055	53	3,009	16,546	7	1,837	2,989	3,039	1,632	29	N.A.	56	2,883	2	40,683
1982	6,309	34	1,934	14,830	—	2,241	6,169	3,142	805	27	N.A.	26	4,343	2	40,248
1983	4,492	27	2,146	17,684	1	2,021	5,708	5,179	N.A.	33	N.A.	62	4,567	4	43,431
1984	4,247	N.A.	2,200	18,869	N.A.	1,401	5,653	6,477	N.A.	N.A.	N.A.	50	N.A.	N.A.	44,592
1985	4,885	115	549	18,828	—	1,635	4,010	4,947	N.A.	N.A.	N.A.	63	N.A.	N.A.	39,433
1986	4,506	155	645	11,207	—	1,459	4,773	6,409	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	34,524
1987 ¹	3,667	122	861	N.A.	N.A.	1,181	5,837	12,190	N.A.	N.A.	N.A.	N.A.	N.A.	10	39,790
1988 ²	4,000	470	800	10,500		1,500	6,000	16,000							53,400
1989 ²															54,970

¹ Preliminary. ² Forecast. Source: Bureau of Mines

T.599

U.S. Consumption of Silver, by End Use In Thousands of Troy Ounces

Year	Bearings	Brazing Alloys & Solders	Catalysts	Dental & Medical	Electroplated Ware	Electrical & Electronic Products Batteries	Contacts & Conductions	Jewelry	Mirrors	Photographic Materials	Sterling Ware	Coins, Medallions ²	Total Net Industrial Consumption	Coinage	Total Consumption
1980	649	8,508	3,035	2,212	4,350	5,976	27,796	5,893	672	49,825	9,082	4,693	124,694	72	124,766
1981	297	7,718	3,830	1,709	3,904	3,803	26,411	5,368	581	51,025	4,407	2,622	116,670	179	116,849
1982	228	7,384	2,418	1,688	3,254	4,167	27,730	6,260	970	51,769	6,579	1,832	118,840	1,846	120,686
1983	170	5,837	2,424	1,532	3,154	2,800	26,298	6,861	970	51,827	7,022	2,979	116,440	2,128	118,568
1984	260	5,889	2,448	1,569	3,542	2,671	25,633	5,773	970	55,322	3,638	2,564	114,841	2,665	117,506
1985	190	5,593	2,409	1,480	3,660	2,470	27,509	5,779	970	57,895	3,527	2,514	118,555	362	118,917
1986	375	6,467	2,313	1,474	3,724	3,309	27,429	4,666	970	58,554	3,935	3,957	121,743	7,535	129,278
1987 ¹	317	5,591	2,474	1,409	3,010	2,413	23,457	4,514	1,000	61,377	3,897	4,194	118,500	15,074	133,574
1988 ²														8,840	133,200
1989 ³														9,970	172,650

¹ Preliminary. ² Includes commemorative objects. ³ Estimate. Source: Bureau of Mines

T.598

Commodity Exchange, Inc. (COMEX) Warehouse Stocks of Silver In Millions of Ounces

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1980	74.8	76.0	77.8	83.1	84.2	82.3	82.0	81.7	82.6	82.2	87.1	86.1
1981	86.9	86.8	85.4	84.6	85.7	85.1	86.6	85.4	78.8	78.1	76.0	77.3
1982	77.6	76.3	78.5	77.1	79.9	78.0	72.4	66.2	60.0	60.7	59.2	80.6
1983	91.2	90.9	106.4	96.8	91.3	69.8	91.1	93.7	113.6	129.3	129.4	129.6
1984	127.4	123.7	116.8	117.2	115.3	114.3	121.8	120.3	116.2	115.0	113.4	115.4
1985	118.9	121.5	122.3	106.6	106.0	104.2	133.7	140.8	141.0	143.6	149.2	153.7
1986	155.2	142.3	145.9	151.3	154.9	144.6	151.9	150.7	158.6	156.8	138.1	145.1
1987	144.9	150.2	160.0	157.9	157.7	156.1	152.5	151.9	158.6	155.7	154.8	155.8
1988	156.3	156.3	156.9	155.8	161.3	164.3	167.1	169.7	175.6	178.8	175.3	178.5
1989	174.4	179.2	190.6	194.3	200.4	204.1	206.0	207.3	210.4	212.3	226.6	237.9
1990	238.8	240.8	243.4									

Source: Commodity Exchange of New York (COMEX)

T.600

United States Production¹ of Refined Silver from All Sources In Thousands of Troy Ounces

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	18,088	17,548	17,673	16,941	10,400	14,800	6,676	11,583	10,785	10,603	10,578	14,553	166,326
1981	12,889	12,000	11,352	11,889	10,402	11,500	10,433	10,114	10,533	9,954	8,105	11,589	130,783
1982	9,043	8,407	10,300	8,856	9,095	8,840	7,781	8,518	7,872	8,307	9,607	11,655	108,252
1983	9,121	8,533	9,063	9,653	7,663	10,210	8,579	8,342	7,886	8,738	9,880	12,058	112,200
1984	7,094	8,414	8,446	9,827	10,423	8,921	8,879	11,226	8,971	8,386	10,200	13,920	116,400
1985	8,414	7,930	8,645	9,238	9,344	9,850	8,578	9,885	8,191	8,429	8,987	11,467	109,000
1986	7,897	7,835	7,340	8,727	7,547	7,129	3,988	6,404	6,932	7,869	8,216	10,197	90,081
1987	8,170	6,098	7,047	7,946	8,473	7,839	8,777	7,731	7,703	6,692	6,955	9,024	92,455
1988	7,852	7,264	9,453	7,956	7,891	9,453	10,562	9,903	7,374	8,074	9,545	9,726	105,053
1989	10,025	9,488	9,883	9,650	12,006	8,956	7,722	9,337					

¹ Output of commercial bars .999 fine, including U.S. Mint purchases of crude. Production is from both foreign and domestic silver.

Sources: American Bureau of Metal Statistics; The Silver Institute, Inc.

T.603

SILVER

Highest and Lowest Prices of December Silver Futures at New York (Comex) In Dollars per Ounce

Year of Delivery	Yr. Prior to Delivery		Delivery Year												Life of Delivery Range
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1981 High	23.525	22.615	18.800	15.900	14.670	13.580	12.700	11.840	9.780	10.260	11.800	10.050	9.410	9.050	43.750
Low	20.875	17.190	14.600	13.750	12.800	11.900	11.210	9.080	8.770	8.730	8.490	9.000	7.870	7.980	7.970
Close	22.015	18.190	15.165	13.720	13.135	12.205	11.685	9.180	9.032	9.720	9.380	9.250	8.205	7.985	—
1982 High	10.700	10.150	9.490	9.860	8.820	8.390	7.540	6.680	7.720	8.660	9.975	10.070	11.010	11.180	17.975
Low	9.110	9.040	8.730	8.650	7.600	7.350	6.670	5.110	5.800	6.320	7.700	8.020	8.950	10.020	5.110
Close	9.280	9.185	9.182	8.622	7.870	7.470	6.675	6.406	6.965	8.040	8.240	10.090	10.090	11.140	—
1983 High	11.900	12.350	15.238	16.070	12.180	13.380	14.420	13.320	13.110	13.250	12.740	10.780	9.860	10.040	16.070
Low	9.900	11.070	11.840	12.666	10.710	11.440	12.680	11.513	11.720	11.750	11.010	8.630	8.320	8.440	6.146
Close	11.090	11.910	15.238	12.666	11.382	12.715	13.640	12.055	12.225	12.410	11.070	8.630	9.620	8.810	—
1984 High	10.860	11.100	9.780	10.730	10.970	10.490	9.970	10.130	8.739	8.390	7.900	7.865	7.900	17.165	17.550
Low	9.220	9.400	8.470	9.290	9.930	9.465	9.110	8.700	7.060	7.200	7.120	7.120	6.950	6.245	6.245
Close	10.649	9.867	9.329	10.420	10.541	9.555	9.835	8.817	7.274	7.660	7.620	7.280	7.019	6.573	—
1985 High	8.745	7.850	6.930	6.850	7.250	7.200	7.015	6.740	6.615	6.630	6.320	6.530	6.318	6.120	12.300
Low	7.700	6.800	6.300	5.930	5.900	6.440	6.180	6.200	5.990	6.230	5.960	6.075	6.040	5.700	5.700
Close	7.736	6.860	6.832	6.059	7.106	6.480	6.392	6.309	6.460	6.370	6.095	6.125	6.077	5.865	—
1986 High	6.840	6.650	6.830	6.450	6.140	5.795	5.495	5.660	5.295	5.780	6.120	5.900	5.870	5.515	7.990
Low	6.540	6.130	6.070	5.930	5.370	5.170	5.030	5.100	5.060	5.150	5.240	5.470	5.200	5.270	5.030
Close	6.609	6.263	6.443	5.968	5.395	5.342	5.434	5.256	5.214	5.230	5.625	5.680	5.389	5.290	—
1987 High	6.210	5.850	6.030	5.880	6.675	10.148	9.900	8.370	8.585	9.100	8.240	8.620	7.330	7.060	10.148
Low	5.520	5.580	5.670	5.635	5.695	6.490	7.600	6.850	7.390	7.370	7.370	6.700	6.240	6.560	5.435
Close	5.717	5.714	5.791	5.707	6.466	8.320	7.920	7.555	8.511	7.530	7.610	6.990	7.037	6.713	—
1988 High	8.000	7.665	7.600	7.070	7.130	7.200	7.080	7.740	8.340	7.150	6.780	6.545	6.590	6.280	10.889
Low	6.697	7.120	6.830	6.450	6.510	6.620	6.600	6.800	6.850	6.600	6.160	6.196	5.980	6.040	5.980
Close	7.656	7.203	6.922	6.600	7.085	6.805	6.889	6.918	7.011	6.710	6.225	6.348	6.136	6.088	—
1989 High	7.210	6.850	6.800	6.545	6.700	6.335	6.040	5.780	5.625	5.500	5.430	5.375	5.890	5.740	8.860
Low	6.570	6.540	6.250	6.250	6.140	5.925	5.320	5.300	5.250	5.160	5.110	5.080	5.171	5.220	5.080
Close	6.756	6.598	6.287	6.324	6.211	5.951	5.420	5.366	5.431	5.165	5.310	5.218	5.668	5.240	—
1990 High	6.430	6.225													
Low	5.646	5.555													
Close	6.161	5.617													

Source: Commodity Exchange of N.Y. (COMEX)

T.596

Month-End Total Open Interest of Silver Futures at New York (COMEX) & Chicago In Thous. of Contracts

Year	At New York (COMEX)												At Chicago (1,000 oz.)			
	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Apr. 1	July 1	Oct. 1
1982	27.6	27.5	25.0	29.3	28.3	27.0	27.3	29.0	27.2	24.6	30.0	31.0	7.1	8.6	7.0	12.5
1983	33.9	44.6	54.3	45.9	50.1	57.1	42.8	42.7	48.1	53.0	51.7	55.4	19.4	32.6	35.8	35.1
1984	59.9	62.0	64.3	71.6	64.5	66.5	58.2	64.8	61.3	64.1	73.2	76.2	32.0	37.8	42.7	35.0
1985	81.5	84.3	76.1	74.3	70.1	77.3	73.5	72.5	70.1	76.1	86.6	85.3	27.1	23.2	25.1	21.4
1986	86.7	82.2	79.5	78.9	73.0	75.6	66.6	72.3	69.4	69.8	92.0	90.5	18.5	16.6	12.9	12.9
1987	89.4	94.5	89.0	105.3	105.7	92.0	79.1	90.4	82.0	80.7	83.2	69.7	12.4	12.8	15.2	13.5
1988	75.5	78.9	70.9	69.5	61.2	73.0	76.9	84.1	80.5	83.3	86.8	87.7	10.3	10.1	11.8	12.6
1989	92.8	95.0	91.4	97.1	91.6	86.1	84.1	88.3	83.4	87.8	88.8	90.2	12.0	9.0	10.5	10.8
1990	94.2												8.6			

Source: Commodity Exchange of N.Y. (COMEX); Chicago Board of Trade

T.601

Volume of Trading in Silver Futures at New York (COMEX) In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	112.8	193.9	211.5	192.9	99.7	217.4	263.1	317.2	258.0	288.9	350.6	372.8	2,869
1983	502.7	601.4	446.6	452.9	516.1	623.7	454.3	656.5	492.0	569.0	596.9	512.7	6,433
1984	570.8	698.8	695.7	629.9	626.7	587.4	554.7	601.5	431.3	449.2	534.2	362.3	6,698
1985	531.8	488.0	518.4	449.8	424.8	377.9	377.7	388.5	267.7	314.0	332.8	349.9	4,821
1986	394.0	368.9	277.6	438.8	280.1	336.1	187.9	317.8	454.6	286.7	338.9	168.2	3,850
1987	247.3	248.0	343.2	932.7	438.6	486.4	378.7	502.7	390.3	468.1	355.9	263.7	5,056
1988	274.1	301.1	348.9	313.9	341.1	726.9	638.9	411.7	299.9	268.4	475.4	264.4	4,665
1989	317.2	408.5	447.3	354.2	278.5	484.7	272.3	360.4	224.9	261.1	622.1	351.4	4,383

Source: Commodity Exchange of N.Y. (COMEX)

T.602

Soybean Meal

World soybean meal production in 1989/90 was estimated by USDA at 69.88 million tonnes, up 9 percent from a year earlier. Soymeal accounted for about 59 percent of world protein meal output, a share that has stayed fairly constant. The U.S. is the largest soymeal producer, followed by Brazil and Argentina.

Soymeal consumption worldwide was forecast at 69.8 million tonnes, up 6 percent from a year earlier. The European Community was projected to consume 17.4 million tonnes. The Soviet Union has imported more soymeal in an effort to increase livestock and poultry production. Asian countries, particularly Taiwan and South Korea, are using more soymeal.

In the EC, soymeal use faces strong competition from rapeseed meal. Argentina and Brazil consume relatively small amounts of the soymeal that they produce.

World soymeal exports were projected at 27.66 million tonnes, or 9 percent more than a year earlier. Brazil was the leading exporter with projected shipments of 10.35 million tonnes, up 19 percent. With a larger crop, Argentina was expected to expand exports to 5.35 million tonnes from 4.8 million in 1988/89. By using differential taxes on exports, Argentina encourages sales of soybean meal more than soybeans, and utilizes its large crushing capacity.

EC imports of soymeal in 1989/90 were projected to reach 11.97 million tonnes, up 7 percent from the previous season. The Soviet Union was expected to import 4.2 million tonnes, up from 4 million. Eastern European countries, particularly Poland and East Germany, are also important

buyers.

U.S. soymeal production was estimated at 26.33 million short tons, up 6 percent. With carry-in stocks of 173,000 tons, the total supply was placed at 26.5 million tons, down 6 percent. Increased production was due, in part, to profitable processing margins.

While U.S. hog numbers were expected to be about the same in 1989/90 and cattle inventories to fall, poultry output expanded. Increases in broiler and turkey production were expected to boost soymeal demand. Soybean inventories were likely to fall slightly, which would allow more meal production. Domestic use of soymeal was projected at 21.35 million tons, up 7 percent.

U.S. soymeal exports in 1989/90 were forecast to be 4.9 million tons, down 4 percent from a year earlier. While foreign production of poultry was expected to rise, U.S. exports were likely to meet stiff competition from Argentina and Brazil. The major markets for U.S. soymeal were the Soviet Union, the Netherlands, Venezuela and Canada. In 1989/90, the Soviets made large purchases of U.S. soymeal and were expected to remain important buyers.

Total U.S. soymeal use was put at 26.25 million tons, 5 percent more than the previous season. Ending stocks of soymeal were forecast at 250,000 tons, compared to 173,000 in 1988/89.

Futures Market

Soybean meal futures and options are traded on the Chicago Board of Trade.

World Soybean Meal Supply & Distribution In Thousands of Metric Tons

Year Begin Oct. 1	Production					Exports			Imports		Consumption			Stocks		
	Brazil	China	EC-12	United States	Total	Brazil	United States	Total	France	Total	EC-12	United States	Total	Brazil	United States	Total
1984-5	10,190	1,410	9,790	22,252	58,200	8,440	4,460	22,310	3,290	22,850	17,970	17,672	59,010	720	351	2,780
1985-6	9,690	2,190	10,220	22,635	61,060	7,380	5,476	23,140	3,670	23,950	18,730	17,318	61,790	610	192	2,860
1986-7	11,280	3,000	10,740	25,182	67,220	8,370	6,661	25,960	3,660	26,610	19,240	18,495	67,670	520	218	3,060
1987-8	10,130	3,960	10,390	25,456	67,640	7,350	6,233	25,130	3,110	25,690	17,990	19,302	67,600	970	139	3,660
1988-9 ¹	11,240	3,670	9,160	22,628	64,240	8,680	4,655	25,330	2,910	25,850	16,780	17,959	65,620	690	157	2,810
1989-90 ²	12,292	3,680	9,810	23,792	69,670	10,350	4,354	27,570	3,300	27,830	17,660	19,368	70,120	360	227	2,622

¹ Preliminary. ² Forecast. Source: Foreign Agricultural Service, U.S.D.A.

T.607a

Supply and Distribution of Soybean Meal in the United States In Thousands of Short Tons

Year Begin Oct. 1	Supply			Distribution			\$ Ton Decatur 44% Solvent	\$ Tonne Decatur 44% Solvent	\$ Tonne	
	For Stocks Oct. 1	Production	Total Supply	Domestic Feed ²	Exports	Total			Brazil FOB 45-46% Protein	Rotter- dam CIF
1984-5	255	24,529	24,784	19,480	4,917	24,397	125.46	138	141	155
1985-6	387	24,951	25,338	19,090	6,036	25,126	154.88	171	175	183
1986-7	212	27,758	27,970	20,387	7,343	27,730	162.70	172	185	191
1987-8	240	28,060	28,300	21,293	6,854	28,147	221.90	245	239	254
1988-9 ¹	153	24,947	25,100	19,750	5,100	24,850	233.00	257	239	263
1989-90 ³	250	26,450	26,700	21,300	5,100	26,400	165.00	204	201	225

¹ Preliminary. ² Includes small quantities used for industrial purposes, estimated at 30,000 tons annually. ³ Estimate. Source: Economic Research Service, U.S.D.A.

T.606

SOYBEAN MEAL



Stocks (at Oil Mills) of Soybean Cake & Meal in the United States In Thousands of Short Tons

Year	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	April 1	May 1	June 1	July 1	Aug. 1	Sept. 1
1976-7	354.9	423.5	427.7	353.9	384.7	429.9	412.6	449.0	408.3	390.7	399.0	270.4
1977-8	228.3	270.0	239.8	245.1	251.7	239.7	227.3	308.2	263.3	191.1	262.6	234.1
1978-9	242.9	210.4	178.2	260.5	215.1	198.4	210.4	231.6	207.4	205.3	232.2	140.3
1979-0	224.3	204.1	164.2	207.7	158.7	160.6	219.1	193.9	265.0	262.0	232.4	225.1
1980-1	189.7	211.1	350.0	221.8	209.7	214.4	232.2	184.4	254.0	209.7	156.1	199.7
1981-2	233.8	309.2	314.8	279.4	315.7	324.9	190.3	172.1	309.3	224.9	209.1	189.7
1982-3	175.2	342.8	349.6	332.3	400.2	422.8	341.0	356.1	341.5	272.3	365.2	378.5
1983-4	474.1	419.3	466.8	391.1	475.8	446.7	460.7	418.6	427.2	391.2	355.5	242.7
1984-5	255.4	236.1	285.7	336.8	319.6	334.1	444.6	429.8	495.8	569.6	562.5	458.0
1985-6	386.9	318.4	369.2	358.4	372.4	281.3	386.6	300.8	282.4	278.7	250.6	298.3
1986-7	211.7	218.0	387.3	240.3	311.2	277.5	235.8	244.0	321.7	261.3	292.9	301.3
1987-8	240.2	267.6	311.8	296.2	390.4	304.9	243.7	299.5	255.6	294.4	437.4	264.6
1988-9 ¹	153.5	267.8	295.6	353.6	442.3	395.7	237.9	296.8	260.4	218.0	264.9	127.9
1989-90 ¹	146.8	188.8										

¹ Preliminary. Sources: Economic Research Service, U.S.D.A.; Bureau of the Census

T.613

SOYBEAN MEAL

U.S. Exports of Soybean Cake & Meal by Country of Destination In Thousands of Metric Tons

Yr. Beg. Oct. 1	Egypt	Ven- ezuela	Canada	Mex- ico	France	West Germany	Spain	Ireland	Italy	Nether- lands	Philip- pines	Poland	United Kingdom	USSR	Yugo- slavia	Total
1982-3	22.5	464.0	401.4		3.7	1,073	28.6	21.2	953.5	2,066	82.5	57.1	72.7	0	80.1	6,449
1983-4	14.3	527.2	427.6	0	0	1,154	63.0	4.6	493.0	693.1	293.8	278.5	2.5	0	8.1	4,862
1984-5	87.0	686.5	489.9	105.8	0	195.9	73.5	16.2	499.0	905.0	195.6	117.2	56.2	0	51.3	4,457
1985-6	200.0	566.8	607.3	81.5	15.0	576.0	74.5	4.7	658.2	1,221	164.0	0	59.7	0	128.8	5,476
1986-7	274.9	628.1	835.1	102.5	53.7	803.5	189.5	40.6	979.7	926.4	124.9	—	73.4	0	124.7	6,661
1987-8	182.0	680.4	681.8	184.0	33.3	177.3	67.7	32.4	554.7	559.9	93.0	26.9	41.6	1,303	88.6	6,191
1988-9 ¹	145.4	529.2	527.0	283.6	0	0		5.7	243.5	216.0	55.5		32.1	1,312	59.3	4,655

¹ Preliminary. Source: Bureau of the Census, U.S. Dept. of Commerce

T.607

Average Price of Soybean Meal¹ (44% Solvent) at Decatur In Dollars per Short Ton (Bulk)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	191.00	191.00	183.60	190.25	192.40	183.60	181.90	169.00	160.80	157.00	173.40	178.50	179.37
1983	179.75	177.10	177.30	186.75	185.75	175.50	189.30	232.80	233.60	228.60	224.70	216.60	200.64
1984	201.90	184.40	196.40	190.00	187.40	174.40	157.60	151.60	144.90	141.60	135.20	136.75	166.84
1985	135.25	125.20	125.90	117.90	111.50	110.25	144.00	121.40	130.60	138.30	142.50	145.00	126.43
1986	153.25	152.25	163.70	157.00	157.90	158.90	161.00	163.50	165.20	151.90	154.00	149.60	157.35
1987	146.80	154.40	146.60	159.00	174.90	185.80	181.25	169.90	177.20	185.50	206.60	214.80	175.23
1988	193.75	183.00	191.80	200.40	223.50	287.80	255.60	255.10	264.90	259.75	248.20	246.00	234.15
1989	249.30	234.10	237.10	220.75	214.70	227.50	231.50	215.50	217.10	191.60	183.40	179.40	216.83

Source: Consumer Marketing Service, U.S.D.A.

T.608

Production of Soybean Cake & Meal in the U.S. In Thousands of Short Tons

Crop Year	Production													Meal in Form of Soybeans ²
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Total	
1982-3	2,386	2,581	2,679	2,628	2,221	2,259	1,950	1,993	1,956	1,934	2,053	2,075	26,714	
1983-4	2,288	2,049	2,123	2,220	1,872	2,029	1,760	1,872	1,665	1,629	1,690	1,559	22,756	
1984-5	2,108	2,326	2,381	2,226	1,887	2,024	1,958	2,101	1,953	1,934	1,832	1,802	24,530	
1985-6	2,218	2,288	2,380	2,344	1,925	2,160	2,008	2,037	1,879	1,977	1,863	1,872	24,951	
1986-7	2,521	2,563	2,527	2,590	2,410	2,489	2,256	2,246	2,135	2,185	1,949	1,888	27,759	
1987-8 ¹	2,439	2,668	2,649	2,554	2,377	2,573	2,450	2,340	2,129	2,110	1,873	1,898	28,060	
1988-9 ¹	2,236	2,399	2,390	2,360	2,036	2,219	2,127	2,061	1,803	1,749	1,701	1,661	24,742	
1989-90 ¹	2,138													

¹ Preliminary. ² Calculated at 47.5 lbs of meal per bushel. Sources: Economic Research Service, U.S.D.A.; Bureau of Census.

T.609

Month-End Open Interest of Soybean Meal Futures at the Chicago Board of Trade In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	41,034	39,700	43,830	45,035	45,481	45,877	47,094	50,823	46,833	44,740	47,300	46,016
1983	50,744	44,808	52,979	46,653	42,893	40,900	50,340	66,826	64,266	64,124	63,461	60,248
1984	55,566	54,875	64,511	58,259	74,576	61,051	48,893	48,410	43,264	47,877	46,919	37,167
1985	39,110	43,110	45,164	48,579	54,103	53,405	41,451	44,260	40,703	46,091	42,925	46,875
1986	43,681	48,404	49,219	49,060	46,708	53,813	50,539	51,857	50,791	56,566	57,794	56,475
1987	64,057	70,403	63,315	67,482	64,661	60,709	51,454	46,696	57,538	63,850	82,040	68,170
1988	62,315	61,246	61,276	70,676	72,303	72,411	73,233	76,836	75,458	77,085	73,688	71,884
1989	68,180	70,239	64,407	57,119	59,130	62,687	60,844	56,888	64,202	60,334	60,743	58,234
1990	66,566											

Source: Chicago Board of Trade

T.610

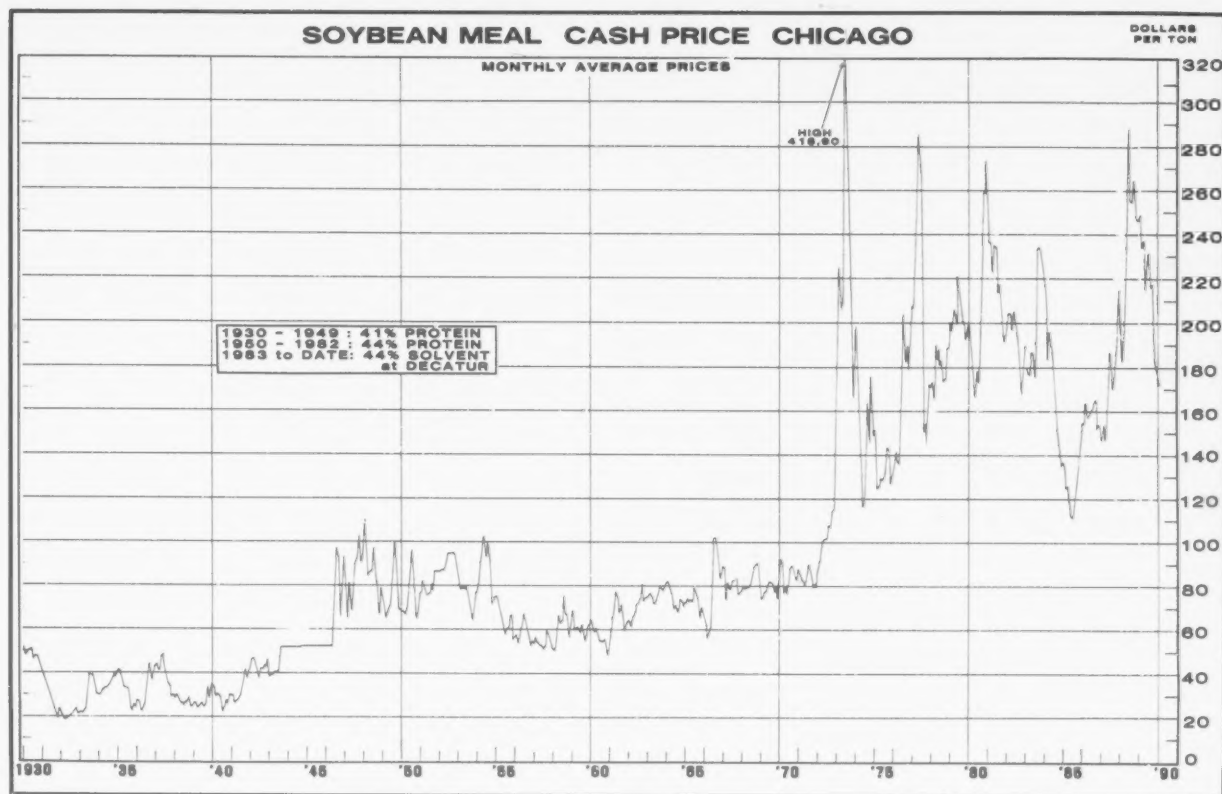
Volume of Trading of Soybean Meal Futures at the Chicago Board of Trade In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	269.2	248.0	252.7	272.9	238.6	259.5	320.5	528.2	447.6	349.4	413.1	271.8	3,872
1984	298.8	283.3	299.6	355.5	449.0	424.0	382.2	307.5	271.2	246.3	266.7	237.3	3,822
1985	252.1	232.6	244.5	283.9	285.0	277.3	420.9	250.7	268.5	287.5	292.3	243.9	3,339
1986	260.2	252.9	218.2	289.3	260.6	242.1	292.5	274.6	222.7	292.3	209.3	234.8	3,049
1987	260.4	211.6	222.6	305.3	353.3	430.1	307.8	247.1	334.7	388.7	385.5	350.9	3,798
1988	393.7	371.5	350.4	396.3	497.3	584.3	482.0	427.7	449.6	446.3	533.1	424.0	5,313
1989	408.1	320.7	382.4	388.8	406.7	403.8	410.7	393.1	382.8	364.8	330.1	294.8	4,487
1990	308.6												

Source: Chicago Board of Trade

T.611

SOYBEAN MEAL



High, Low & Closing Prices of May Soybean Meal Futures on the Chicago Board of Trade \$ per Ton

Year of Delivery	Year Prior to Delivery											Delivery Year					Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May		
1983 High	—	215.0	210.0	205.5	199.0	195.5	176.0	169.0	180.5	178.5	186.0	186.1	192.8	193.3	190.3	215.0	
Low	—	203.0	201.5	197.0	189.5	171.0	165.3	160.3	166.5	171.3	174.1	170.6	172.5	183.3	176.1	160.3	
Close	—	209.5	201.5	197.7	192.0	174.0	166.5	166.0	178.0	175.2	185.6	171.4	189.7	189.4	181.3	—	
1984 High	219.5	217.5	213.0	198.0	229.0	267.5	261.0	246.0	249.6	229.5	221.5	201.5	210.0	205.4	199.0	267.5	
Low	213.5	207.5	194.2	185.0	194.0	218.8	229.0	229.5	220.0	212.2	193.2	188.9	200.5	182.5	183.0	182.5	
Close	215.2	211.5	194.2	195.0	216.2	244.0	240.0	232.0	226.7	225.0	197.4	200.7	202.9	183.8	198.4	—	
1985 High	—	204.5	195.7	201.0	197.0	180.0	172.0	175.0	173.3	165.5	154.0	147.0	141.5	137.0	124.9	204.5	
Low	—	196.0	190.5	188.2	169.5	167.5	160.0	160.5	163.0	150.1	145.6	129.5	130.1	120.1	118.5	118.5	
Close	—	196.0	198.0	200.5	171.3	171.0	162.0	169.7	164.8	151.1	147.6	130.3	138.1	120.5	118.6	—	
1986 High	—	162.5	154.3	151.5	158.0	139.5	145.2	151.9	152.5	157.0	160.5	161.5	163.9	159.5	156.5	163.9	
Low	—	152.8	145.0	143.0	135.5	132.5	134.0	139.0	136.0	141.5	150.0	150.3	153.5	150.5	144.3	132.5	
Close	—	152.8	146.2	143.7	137.0	135.5	141.0	151.0	145.0	153.4	154.0	161.2	153.7	157.2	149.6	—	
1987 High	—	165.5	169.7	154.0	158.5	155.4	157.1	155.5	151.8	149.0	145.8	143.3	143.5	161.9	179.5	179.5	
Low	—	149.7	152.0	146.5	143.0	148.0	152.1	148.7	148.6	141.5	139.2	135.6	135.8	143.6	158.8	135.6	
Close	—	165.2	153.2	146.5	154.7	155.3	155.0	151.8	149.0	145.5	140.0	136.9	143.1	160.9	168.0	—	
1988 High	—	163.5	188.0	199.0	170.0	156.5	167.5	171.0	195.5	196.5	189.5	191.9	195.2	203.7	249.0	249.0	
Low	—	155.0	162.0	168.0	157.0	148.0	154.0	157.2	163.3	177.0	175.5	174.5	179.8	193.5	202.0	148.0	
Close	—	163.5	173.0	169.5	160.2	152.9	163.7	167.2	192.2	185.2	178.1	188.6	193.8	203.5	246.5	—	
1989 High	204.5	215.5	241.7	304.0	280.0	260.0	274.0	258.0	262.0	264.0	267.0	249.2	246.7	234.0	227.7	304.0	
Low	200.5	204.0	209.5	239.0	221.5	236.0	245.5	239.0	232.5	236.5	239.0	225.7	226.5	216.0	209.5	200.5	
Close	203.5	214.2	241.7	275.0	233.2	254.0	249.7	247.5	245.7	263.5	247.9	237.7	227.5	221.6	210.2	—	
1990 High	223.0	221.7	218.5	200.5	214.5	189.0	188.5	185.3	186.0	185.2	181.8						
Low	215.0	209.0	182.5	183.5	181.1	179.0	176.5	174.5	178.5	178.2	169.8						
Close	215.0	209.5	184.5	193.0	181.3	184.7	179.5	179.0	184.3	181.4	171.1						

Source: Chicago Board of Trade

T.612

Soybean Oil

World soyoil production in 1989/90 was forecast by the USDA at 15.81 million tonnes, up 8 percent from the previous season. Soyoil was expected to account for about 28 percent of world output of vegetable and marine oils, followed by palm oil.

The U.S. was the major soyoil producer, accounting for 35 percent of world output in 1989/90. Brazil and Argentina continued to expand their shares of world production.

World soyoil consumption in 1989/90 was estimated at 15.7 million tonnes, up 4 percent from the season before. Consumption of soyoil and other oils has risen, due to population increases, higher incomes, and improving diets. Much of this increase has occurred in Asia. Soyoil competes with several substitute vegetable oils. While palm oil production was increasing, concerns about saturated fats in tropical oils was likely to dampen its demand.

Global soyoil exports in 1989/90 were put at 4 million tonnes, up 9 percent. While Brazilian and Argentine exports were projected to rise, U.S. shipments fell. Brazilian exports were forecast at 950,000 tonnes, up from 700,000 a year earlier. Argentine shipments were likely to rebound to 1 million tonnes from 880,000. The European Community was expected to ship 1.1 million tonnes, the same as the previous season. The EC was also a large importer. The major importers included the USSR, Iran, China, Japan, and Pakistan.

World ending stocks of soyoil were put at 1.7 million tonnes in 1989/90, down marginally from the previous season. U.S. and Brazilian stocks were projected to decline; Argentine stocks were to rise.

U.S. soyoil production in 1989/90 was estimated

at 12.2 billion pounds, up 4 percent from a year earlier. With beginning stocks of 1.71 billion pounds, total supplies were projected at 13.9 billion pounds. Beginning stocks were off 18 percent from the previous season, and imports of 15 million pounds were down from 140 million. Imports of soyoil were a concern in 1988/89, but that worry virtually disappeared in 1989/90.

Domestic use of soyoil was projected at 11 billion pounds, up 4 percent. U.S. consumption is directly related to population increases and the level of economic activity. Consumers are eating away from home more, boosting soyoil use. Soyoil remained competitively priced with substitute oils in 1989.

U.S. soyoil exports were forecast at 1.45 billion pounds, down 13 percent from 1988/89. Competition from South American oils and palm oil explained the decline. Palm oil from Malaysia and Indonesia has significant transportation advantages in the growing Asian market. Developing countries tend to be more price conscious and less concerned with health factors, like saturated fats.

Some U.S. soyoil is sold under the Export Enhancement Program, which subsidizes sales. Other sales are made under concessionary terms to developing countries. Countries targeted for soyoil sales include Pakistan, Bangladesh, and Morocco.

Projected U.S. ending stocks in 1989/90 were 1.5 billion pounds, down 13 percent from a year earlier.

Futures Market

Soybean oil futures and options are traded on the Chicago Board of Trade.

World Supply & Demand of Soybean Oil In Thousands of Metric Tons

Year Begin Oct. 1	Production				Exports			Imports		Consumption					Stocks ³	
	Brazil	EC-12	United States	Total	Brazil	United States	Total	India	Total	Brazil	EC-12	India	United States	Total	United States	Total
1984-5	2,460	2,210	5,202	13,340	990	753	3,630	400	3,510	1,550	1,400	580	4,498	13,130	287	1,360
1985-6	2,350	2,250	5,269	13,850	450	570	3,150	260	3,090	1,940	1,380	470	4,560	13,500	430	1,650
1986-7	2,730	2,360	5,798	15,200	950	538	3,900	360	3,800	1,930	1,460	450	4,915	14,770	782	1,990
1987-8	2,440	2,280	5,885	15,260	610	850	3,800	420	3,780	1,930	1,520	600	4,956	15,100	949	2,130
1988-9 ¹	2,700	2,030	5,324	14,620	700	754	3,720	50	3,730	2,130	1,490	420	4,803	15,090	778	1,680
1989-90 ²	3,100	2,160	5,588	15,330	950	658	4,040	100	3,850	2,200	1,530	390	5,035	15,690	680	1,610

¹ Preliminary. ² Forecast. ³ End of season. Source: Foreign Agricultural Service, U.S.D.A.

T168b

Supply & Distribution of Soybean Oil in the U.S. In Millions of Pounds

Year Begin. Oct. 1	Production	Imports	Stocks Oct. 1	Exports & Ship- ments	Total Domestic	Domestic Disappearance					Non-Food				Total Disap- pearance
						Short- ening	Marg- arine	Food Cooking & Salad Oils	Other Edible	Total Food	Paint & Varnish	Resins & Plastics	Fatty Acids	Total Non-Food	
1984-5	11,468	20	721	1,660	9,917	3,655	1,589	4,800	129	10,172	52	93	29	252	11,577
1985-6	11,617	8	632	1,257	10,053	3,440	1,735	4,686	138	10,004	60	99	32	280	11,310
1986-7	12,783	15	947	1,187	10,833	3,359	1,661	5,054	138	10,213	63	109	33	300	12,020
1987-8	12,974	196	1,725	1,873	10,930	3,627	1,629	5,043	130	10,429					12,803
1988-9 ¹	11,743	140	2,092	1,450	10,600	3,450	1,550	4,500	135	9,630					12,050
1989-90 ²	12,260	15	1,925	1,400	11,000										12,400

¹ Preliminary. ² Forecast. Source: Economic Research Service, U.S.D.A.

T 623

SOYBEAN OIL

Salient Statistics of Soybean Oil in the U.S. In Millions of Pounds

Crop Year Begin. Oct.	Production		Consumption		Stocks Sept. 30		Imports for Con- sumption	Exports		\$ Tonne S.B. Oil Brazil FOB Bulk
	Crude	Refined	In Refining	In End Pdt's.	Crude	Refined		Crude	Refined	
1982-3	12,040	9,714	10,075	9,485	959.4	301.6	66.8	1,725	17.0	444
1983-4	10,872	9,475	9,827	9,477	435.5	285.0	0	1,398	22.9	685
1984-5	11,470	9,937	10,284	10,515	341.3	291.2	20.4	1,255	16.4	609
1985-6	11,617	9,719	10,088	10,283	652.6	294.0	7.7	833.3	32.8	342
1986-7	12,798	10,400	10,751	10,512	1,451	274.0	1.1	903.0	38.8	302
1987-8	12,975	10,771	11,120	10,715	1,834	258.3		1,626	9.4	400
1988-9										407

Source: Bureau of Census

T 614

U.S. Exports of Soybean Oil,¹ by Country of Destination In Thousands of Metric Tons

Yr. Beg. Oct. 1	Aus- tralia	Colom- bia	Can- ada	Venez- uela	Ecu- dor	Ethi- opia	Haiti	Peru	India	Israel	Mex- ico	Moroc- co	Paki- stan	Pana- ma	Egypt	Grand Total
1979-0	16.4	82.6	14.8		35.3		22.8	36.2	427.7	9.6	31.4	2.3	147.4	17.9	6.0	1,220
1980-1	16.5	60.3	7.8		38.6		22.4	41.2	61.8	5.2	21.6	5.0	125.7	14.7	3.4	740
1981-2	22.6	77.4	5.4	42.7	36.2		8.8	46.8	68.4	.3	91.1	9.7	259.9	21.7	6.9	942
1982-3	5.0	69.5	7.5	55.9	50.4		20.4	70.2	54.9	.4	16.3	9.0	236.7	16.4	2.5	918
1983-4	.3	24.8	9.8	50.5	41.1		12.5	24.9	169.4	.5	68.1	2.5	216.1	15.7	3.6	827
1984-5	.2	22.2	12.9	51.9	44.7	24.0	16.1	11.4	62.8	.9	45.4	3.8	168.4	8.0	3.9	753
1985-6	.2	8.9	6.1	17.1	16.7	17.3	9.5	1.6	37.6	.4	49.1	3.2	274.9	2.8	4.9	570
1986-7	.4	.5	6.9	18.7	18.8	.6	15.3	1.3	47.1	.4	21.9	59.5	146.7	3.0	1.9	538.5
1987-8	—	.3	7.3	4.9	19.1	17.6	3.4	1.1	151.6		11.5	35.8	396.7	3.7	.7	850.0
1988-9 ²	.1	.2	5.4	29.1	30.9	9.0	2.8	2.8	28.1		17.7	80.0	453.1	6.7		753.6

¹Crude & refined oil combined as such. ²Preliminary. Source: The Bureau of the Census, U.S. Dept. of Commerce.

T 615

U.S. Production of Crude Soybean Oil In Millions of Pounds

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1979-0	1,020	1,068	1,102	1,115	1,065	1,098	993.7	1,010	901.6	927.8	913.8	890.1	12,105
1980-1	1,080	1,078	1,024	1,011	887.8	991.3	954.2	914.9	830.7	815.8	827.2	855.6	11,271
1981-2	1,125	1,018	1,070	995.6	917.7	912.1	866.8	930.2	828.4	765.6	732.0	818.3	10,979
1982-3	1,079	1,145	1,191	1,167	997.0	1,015	881.3	908.9	891.3	888.0	930.2	945.3	12,040
1983-4	1,081	957.7	990.9	1,053	896.9	972.7	846.7	906.3	803.5	788.8	819.4	755.9	10,872
1984-5	995.5	1,072	1,096	1,027	879.0	946.0	917.6	983.3	918.9	912.6	868.8	853.4	11,470
1985-6	1,040	1,053	1,096	1,086	894.8	1,005	935.4	953.3	881.9	909.5	875.3	886.7	11,618
1986-7	1,163	1,172	1,152	1,186	1,110	1,149	1,047	1,038	980.9	1,014	891.3	881.4	12,783
1987-8	1,120	1,207	1,208	1,170	1,092	1,187	1,133	1,087	996.4	994.2	878.6	901.3	12,975
1988-9 ¹	1,047	1,109	1,110	1,106	952.3	1,041	1,010	977.4	856.1	835.9	855.0	804.6	11,737
1989-90 ¹	1,057												

¹Preliminary. Source: Bureau of the Census

T 618

U.S. Production of Refined Soybean Oil In Millions of Pounds

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1979-0	805.9	797.6	760.3	801.9	760.5	767.7	687.1	712.8	669.0	720.3	760.7	764.5	9,038
1980-1	784.1	760.5	763.1	741.6	706.3	833.9	741.2	754.9	812.9	765.4	813.3	812.1	9,289
1981-2	833.6	840.9	805.2	768.7	767.6	866.4	754.5	817.3	866.3	775.4	811.7	794.0	9,702
1982-3	824.6	827.8	795.1	784.1	727.1	841.8	800.9	843.1	824.0	778.7	837.7	828.8	9,714
1983-4	839.2	747.2	737.1	797.9	813.2	841.8	763.8	859.5	794.6	767.9	752.2	760.9	9,475
1984-5	907.6	835.5	821.2	838.7	796.1	835.5	865.0	899.5	773.1	763.9	806.2	794.4	9,937
1985-6	865.7	834.8	790.0	804.2	751.1	819.5	783.0	808.5	816.8	780.2	830.1	834.8	9,719
1986-7	911.3	848.1	850.0	790.2	763.6	900.7	871.2	826.9	871.3	921.8	898.6	946.5	10,400
1987-8	975.5	925.8	902.5	880.3	843.4	925.6	843.5	894.1	890.1	947.4	903.6	838.7	10,771
1988-9 ¹	867.1	826.9	800.8	776.7	709.6	830.1	800.6	867.4	801.4	791.4	866.6	866.6	9,809
1989-90 ¹	937.4												

¹Preliminary. Source: Bureau of the Census

T 617

SOYBEAN OIL

Soybean Oil Consumption in End Products in the U.S. In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	695.1	636.2	755.3	682.4	775.0	701.6	711.4	744.8	700.9	781.4	742.2	730.1	8,656
1980	750.7	719.4	762.9	671.6	693.6	683.7	671.2	754.5	737.1	719.1	682.6	738.7	8,585
1981	698.7	680.7	775.1	722.3	728.7	774.0	741.1	755.1	796.4	796.8	783.6	749.3	9,002
1982	740.0	737.7	809.6	715.2	761.0	834.6	775.2	811.9	820.5	799.9	763.1	733.2	9,302
1983	761.6	702.2	827.3	765.9	814.9	830.3	745.1	847.0	894.3	812.7	711.4	705.2	9,418
1984	827.6	821.7	837.8	781.1	857.4	824.4	744.7	772.2	780.6	932.0	883.4	856.1	9,919
1985	989.0	804.0	867.1	885.9	944.9	810.5	825.9	856.1	863.7	922.4	864.2	851.6	10,481
1986	836.7	794.0	859.7	849.1	850.3	856.8	835.1	843.1	890.3	927.6	840.6	891.2	10,305
1987	800.9	799.4	862.0	869.6	824.4	918.9	932.7	902.9	949.6	961.4	876.0	891.5	10,589
1988 ¹	913.9	820.5	930.0	839.9	870.5	937.9	936.5	907.3	829.1	862.0	829.1	847.1	10,524
1989 ¹	780.9	729.8	834.7	803.0	851.9	854.2	774.7	877.3	876.4	915.4			

¹ Preliminary. Source: Bureau of the Census

T.624

U.S. Exports of Soybean Oil (Crude & Refined) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	219.1	249.8	199.0	185.6	107.3	299.0	166.2	187.4	159.1	127.8	208.5	261.9	2,371
1980	173.4	250.0	325.4	269.6	327.3	194.6	109.7	175.7	171.2	112.5	84.7	120.5	2,315
1981	116.0	113.8	202.8	76.1	109.6	108.8	93.1	291.7	97.9	187.2	146.6	184.3	1,698
1982	43.9	176.7	126.5	148.5	103.3	208.0	270.2	237.4	244.1	181.1	174.9	142.0	2,057
1983	124.0	225.9	90.4	305.7	127.5	94.1	208.9	125.1	225.1	55.1	54.7	95.5	1,732
1984	161.3	289.9	258.9	163.3	208.3	157.3	140.0	73.0	156.3	200.3	214.6	189.6	2,068
1985	66.7	198.3	184.9	66.9	52.4	138.8	174.4	70.1	102.8	125.4	38.1	74.3	923.3
1986	80.6	100.7	92.8	124.0	50.7	115.1	44.6	187.7	223.4	118.2	27.4	22.8	1,188
1987	67.9	74.0	52.1	28.2	47.4	85.0	175.6	261.0	224.8	100.1	139.0	134.0	1,389
1988	25.7	281.0	279.4	87.7	138.6	269.0	157.2	78.1	183.2	200.1	110.6	119.9	1,931
1989 ¹	104.5	65.8	112.4	105.5	161.4	72.1	159.3	181.1					

¹ Preliminary. Source: Dept. of Commerce

T.619

U.S. Stocks of Soybean Oil (Crude & Refined) at Factory & Warehouses In Millions of Pounds

Year	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	April 1	May 1	June 1	July 1	Aug. 1	Sept. 1
1979-0	775.8	819.8	867.3	1,030	1,155	1,205	1,176	1,184	1,145	1,226	1,305	1,263
1980-1	1,210	1,428	1,677	1,738	1,900	1,976	2,017	2,119	2,166	2,139	2,024	1,783
1981-2	1,736	1,790	1,884	2,024	2,160	2,141	2,141	2,112	2,018	1,889	1,647	1,398
1982-3	1,103	1,208	1,305	1,587	1,713	1,700	1,842	1,600	1,552	1,546	1,411	1,408
1983-4	1,261	1,453	1,661	1,919	1,907	1,583	1,520	1,380	1,203	1,012	989.6	871.0
1984-5	720.5	597.2	580.1	777.1	883.6	723.9	715.6	666.0	706.7	731.9	724.2	715.7
1985-6	632.4	636.1	810.4	969.4	1,167	1,181	1,247	1,219	1,360	1,225	1,321	1,152
1986-7	946.6	963.6	1,269	1,507	1,837	2,017	2,352	2,344	2,416	2,339	2,184	1,979
1987-8	1,725	1,661	1,834	2,050	2,391	2,239	2,343	2,385	2,570	2,361	2,203	2,212
1988-9 ¹	2,092	2,046	2,303	2,540	2,703	2,902	2,893	2,759	2,743	2,683	2,247	2,070
1989-90 ¹	1,715	1,535										

¹ Preliminary. Source: Bureau of the Census

T.616

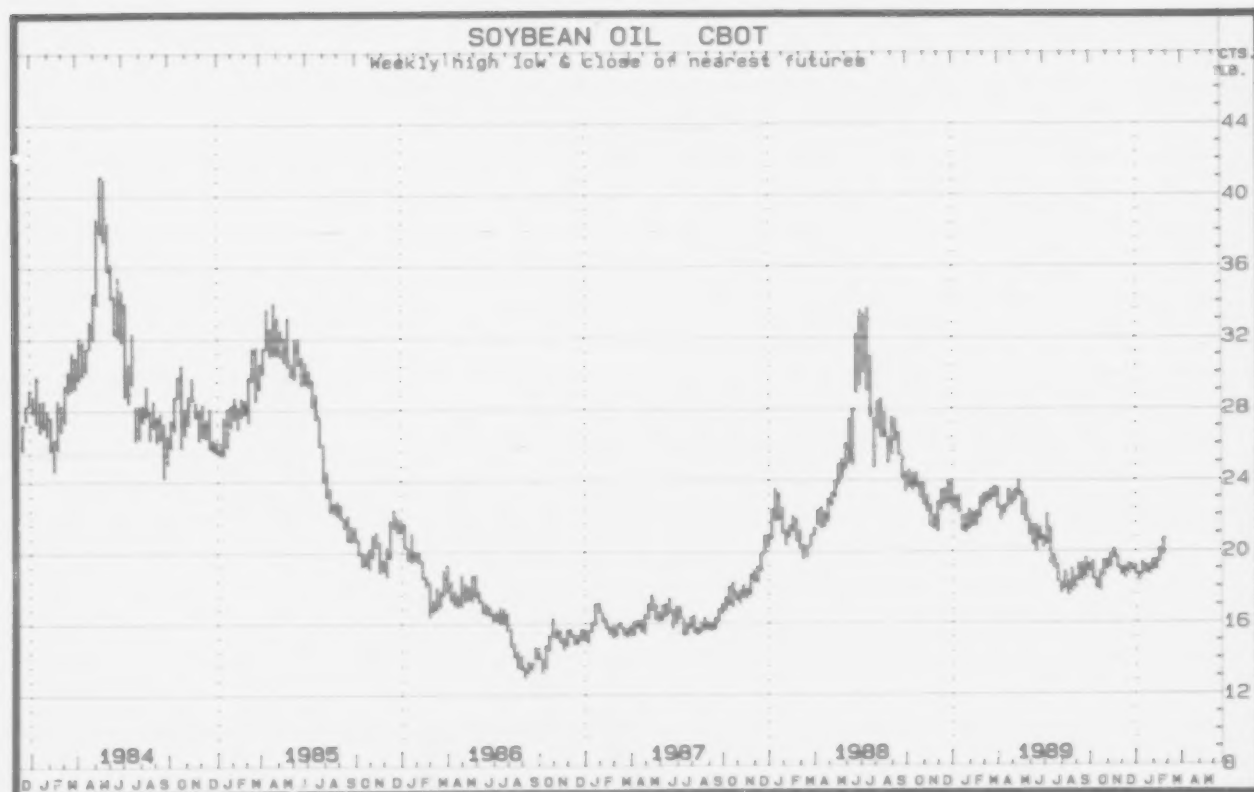
Average Prices of Crude Domestic Soybean Oil (in Tank Cars) F.O.B. Decatur In Cents per Pound

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
1979-0	27.9	27.8	26.2	23.6	23.4	22.1	20.3	20.8	21.6	26.2	25.9	26.1	24.3
1980-1	25.1	26.7	23.7	23.0	22.0	23.1	23.4	21.6	21.3	22.8	20.8	19.4	22.7
1981-2	19.7	19.9	18.9	18.4	18.2	18.5	19.7	20.6	19.4	19.0	17.9	17.4	19.0
1982-3	17.4	17.6	16.6	16.4	17.3	17.7	19.3	19.8	19.4	21.6	30.2	34.3	20.6
1983-4	30.7	28.1	27.3	28.3	27.2	30.1	32.1	39.0	36.0	31.0	29.0	28.0	30.6
1984-5	30.6	31.9	28.4	28.0	29.6	31.3	33.6	32.5	32.5	29.1	24.1	22.6	29.5
1985-6	20.7	20.6	21.4	20.6	18.6	17.6	17.7	17.8	16.8	16.2	14.3	13.9	18.0
1986-7	14.63	14.88	14.94	15.60	15.40	15.21	15.31	16.22	15.96	15.41	15.16	15.58	15.36
1987-8	17.03	17.55	19.00	21.98	20.94	20.22	21.67	23.56	27.68	29.65	27.16	25.55	22.67
1988-9	23.42	21.55	22.16	21.13	21.21	22.11	21.97	22.23	20.75	19.66	18.08	18.77	21.09
1989-90 ¹	18.72	19.51	19.09										

¹ Preliminary. Source: Bureau of Labor Statistics

T.620

SOYBEAN OIL



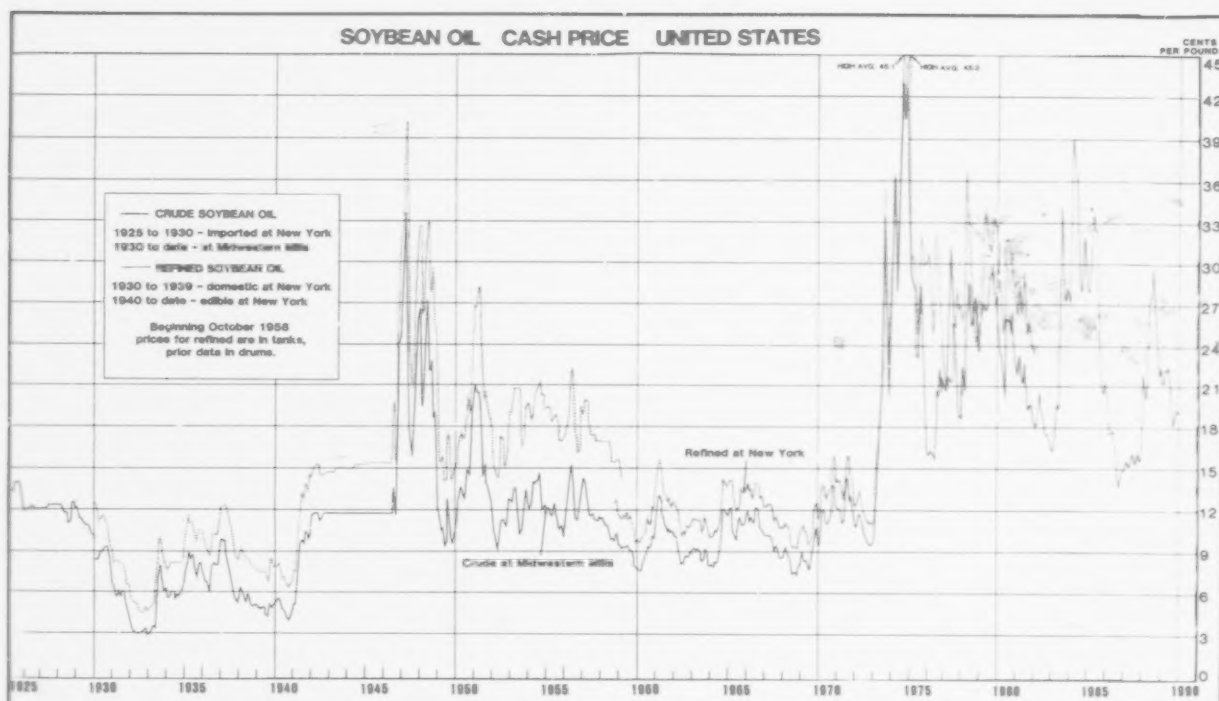
High, Low & Closing Prices of May Soybean Oil Futures on the Chicago Board of Trade c per lb.

Year of Delivery	Year Prior to Delivery												Delivery Year			Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1983 High	—	—	22.90	21.65	20.42	19.90	19.35	18.60	18.40	17.75	17.96	18.30	18.59	19.64	19.85	22.90
Low	—	—	21.66	20.30	19.73	18.15	18.00	17.50	17.25	16.91	16.61	16.65	16.80	18.54	18.92	16.61
Close	—	—	21.66	20.32	19.73	18.85	18.00	17.60	17.48	16.91	17.91	16.74	18.56	19.61	19.29	—
1984 High	—	21.60	21.60	20.75	25.25	34.00	35.85	22.60	30.70	30.10	30.60	28.82	31.55	33.70	41.15	41.15
Low	—	20.75	19.27	19.75	20.50	25.05	29.90	28.35	26.20	26.50	27.00	25.05	27.72	29.70	31.97	19.27
Close	—	21.53	20.20	20.75	24.30	32.95	31.00	28.88	27.74	30.08	27.68	28.25	29.82	32.47	39.87	—
1985 High	—	—	29.95	30.10	27.15	27.45	26.50	25.75	26.10	25.60	27.20	27.70	30.60	34.00	33.27	34.00
Low	—	—	28.10	26.92	23.15	24.35	22.80	23.85	23.78	23.95	24.40	26.30	26.15	30.05	30.65	22.80
Close	—	—	28.88	27.92	24.35	26.70	23.80	25.07	24.55	24.61	26.67	27.26	30.52	32.53	32.93	—
1986 High	24.40	27.85	27.45	25.80	25.40	24.20	22.65	22.15	21.60	23.04	22.50	20.30	19.27	19.25	18.50	27.85
Low	24.40	24.40	24.40	24.20	23.90	22.30	21.45	20.02	19.25	19.30	19.91	16.76	16.96	16.90	17.22	16.76
Close	24.40	27.20	24.53	24.86	24.25	22.60	22.20	20.92	19.60	22.01	20.14	17.06	19.24	18.65	17.50	—
1987 High	20.60	20.90	19.75	18.71	18.40	17.35	15.80	16.75	16.35	16.30	17.38	17.20	16.30	16.14	17.60	20.90
Low	18.38	18.48	18.50	17.65	17.20	14.75	14.40	14.60	15.27	15.50	15.45	15.84	15.21	15.30	15.95	14.40
Close	20.60	19.95	18.68	17.65	17.20	14.90	15.43	15.95	16.19	15.76	17.00	15.91	15.59	15.92	16.56	—
1988 High	—	—	19.25	19.00	18.40	17.50	18.04	19.30	19.55	21.55	23.70	22.33	21.50	22.95	24.80	24.80
Low	—	—	17.77	17.50	16.85	16.50	16.80	17.81	17.86	19.00	21.32	20.66	19.86	21.32	22.58	16.50
Close	—	—	17.82	18.15	17.38	16.95	17.75	18.08	19.30	21.41	21.33	21.57	21.21	22.86	24.64	—
1989 High	—	24.25	27.15	33.00	32.90	29.43	29.10	26.15	25.07	24.95	24.05	23.80	23.87	23.45	23.90	33.00
Low	—	22.42	24.20	25.80	25.90	26.70	25.20	24.22	22.45	22.90	21.56	21.93	22.40	21.75	22.01	21.56
Close	—	24.25	27.10	31.50	26.90	28.65	25.77	24.72	23.17	23.95	22.44	23.67	22.48	22.83	22.52	—
1990 High	—	25.90	26.15	23.25	23.50	20.55	21.10	20.80	21.09	20.28	20.08	—	—	—	—	—
Low	—	24.30	22.77	21.57	19.65	19.30	19.91	19.20	19.63	19.48	19.22	—	—	—	—	—
Close	—	25.17	22.77	21.75	19.65	20.05	20.32	20.11	19.93	19.60	19.55	—	—	—	—	—

Source: Chicago Board of Trade

T.622

SOYBEAN OIL



Month-End Open Interest of Soybean Oil Futures of the Chicago Board of Trade In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	62,515	63,472	59,707	52,805	61,089	65,949	64,710	63,908	66,723	75,815	91,407	71,527
1981	58,671	65,580	57,956	67,241	56,968	63,400	54,007	56,847	49,411	50,786	54,232	48,295
1982	53,029	53,375	49,824	53,395	57,366	58,151	56,863	50,574	44,091	41,930	45,976	50,290
1983	49,329	49,360	57,446	59,894	58,635	55,678	53,842	71,341	73,946	79,303	74,817	67,695
1984	58,227	54,536	53,081	60,190	65,570	58,857	49,323	46,848	41,617	40,386	43,856	40,264
1985	38,534	44,803	48,093	60,717	58,629	59,856	41,451	56,313	48,963	45,951	44,186	48,361
1986	50,584	55,010	57,640	57,825	54,035	61,808	62,011	59,429	53,720	66,372	72,037	63,797
1987	85,826	77,627	73,653	77,508	81,405	88,656	77,028	68,039	66,938	69,040	80,398	76,229
1988	85,655	87,700	85,335	91,026	86,679	91,569	91,579	86,498	83,108	81,549	82,576	72,108
1989	79,741	82,373	75,621	75,139	74,888	74,366	73,726	64,894	61,673	64,536	69,181	67,999
1990	75,478											

Source: Chicago Board of Trade

T.625

Volume of Trading of Soybean Oil Futures at the Chicago Board of Trade In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	200.7	210.3	177.1	185.0	198.2	216.9	361.8	284.8	329.9	332.6	327.0	343.7	3,168
1981	243.8	231.1	237.9	254.0	221.7	274.8	355.1	233.7	240.2	235.0	228.1	292.1	3,047
1982	219.1	245.6	239.8	272.2	277.7	270.7	264.5	294.9	260.5	195.4	307.4	221.6	3,049
1983	273.6	244.1	264.4	273.2	233.1	288.9	332.6	452.3	445.4	378.7	355.5	316.7	3,859
1984	358.3	346.5	337.7	360.0	513.7	436.7	353.6	280.8	244.2	269.5	288.0	220.5	4,010
1985	264.2	256.0	311.6	405.0	416.4	308.7	341.1	281.5	233.0	270.0	281.5	278.4	3,647
1986	263.1	235.9	254.0	311.7	273.8	262.0	296.0	237.9	202.7	324.8	261.4	259.6	3,183
1987	347.3	304.8	267.7	303.4	374.2	363.9	356.3	267.6	301.1	349.8	315.1	361.2	3,912
1988	437.0	390.7	346.8	442.7	399.2	580.2	461.4	403.6	390.0	303.1	377.3	364.2	4,896
1989	317.8	347.7	368.1	384.7	428.4	386.3	414.5	348.8	320.8	341.0	344.2	298.6	4,301
1990	294.1												

Source: Chicago Board of Trade

T.626

Soybeans

Soybeans accounted for 50 percent of world oilseed production in 1989/90, followed by cottonseed and peanuts. Worldwide soybean production was forecast at 107.5 million tonnes, up sharply from 95.2 million a year earlier.

The U.S. is the largest producer, with 49 percent of world output. While Brazil's crop was projected to be smaller, Argentine output was expected to rebound, following a drought. Brazil's crop was forecast at 20.5 million tonnes, down 11 percent from the previous season's record. High costs of inputs like seeds and fertilizer in Brazil and a shortage of government credit were expected to affect acreage and yields.

In Argentina, rains relieved some dryness left from the previous season. The crop was projected to be 10.5 million tonnes, well above 3.6 million in 1988/89. During the planting season, dryness forced producers to reduce corn and sorghum acreage. However, most of that acreage was shifted to sunflowerseed.

Global exports were expected to rise to 26 million tonnes, from 23.1 million, with larger exports by the U.S. and Argentina. The U.S. share of the export market was projected at 61 percent, compared with 62 percent the previous season.

In recent years, Brazil and Argentina have used their large crushing capacity to process soybeans, so that the value-added products, soy meal and soy oil, can be exported. Brazil is an important processor, and its crush amounts to half the U.S. total. Brazil exports large amounts of soy meal, while retaining soy oil for the domestic market. Brazil's soybean exports in 1989/90 were projected at 4.5 million tonnes, down from 4.7 million.

Argentina has developed a large oilseed processing capacity to handle sunflowerseed and flaxseed, as well as soybeans. Argentina encourages exports of soy meal and soy oil by taxing soybean exports. This provides incentives to utilize excess crushing capacity. Argentina's soybean exports were projected at 2.5 million tonnes, up significantly from 400,000 tonnes in 1988/89.

The major soybean importer is the European Community, particularly the Netherlands and West Germany. The EC was expected to import 12.4 million tonnes, versus 11.2 million in 1988/89. Japan was likely to import 4.4 million tonnes, up slightly.

The 1989/90 world soybean crush was projected at 88 million tonnes, up 8 percent from a year

earlier. The leading processors were the U.S., Brazil, Argentina and the EC. The U.S. share of the world crush was put at 34 percent, while the South American share was 27 percent. World ending stocks of soybeans were projected to be 20.4 million tonnes, 13 percent more than in 1988/89.

The 1989 U.S. soybean crop was 1.94 billion bushels, some 25 percent more than the previous season. Harvested area of 59.1 million acres was 3 percent more than in 1988, and yields were 33 bushels per acre. It was a fairly normal growing season, following the previous season's drought. The eastern states of Indiana and Ohio were wet during the spring, and delays in planting corn led to ideas that more soybeans would be planted. The western Corn Belt states were still dry from the previous season, but timely rains and moderate temperatures allowed the crop to develop. The South and the Delta had some heavy rains, which hurt yields.

U.S. carry-in stocks in 1989/90 were 182 million bushels, down 40 percent from the previous season. The small carry-in and a larger crop resulted in a total supply of 2.12 billion bushels, up 15 percent.

With larger supplies and lower prices, usage was expected to rise. The crush was forecast at 1.11 billion bushels, up 5 percent, as crushing margins were profitable. Use of meal was likely to improve, and stocks of soy oil were trending lower. While supplies of South American soybeans were large, an increase in world consumption of vegetable oil was likely to encourage more processing.

U.S. soybean exports in 1989/90 were estimated at 580 million bushels, up 10 percent. The major U.S. markets were Japan and the EC.

Total U.S. soybean use was projected at 1.78 billion bushels, compared to 1.67 billion a year earlier. Stocks at the end of 1989/90 were forecast at 335 million bushels, 84 percent above the previous season. Projected stocks represented 19 percent of use, compared to 11 percent the season before.

The price support loan rate for 1989-crop soybeans was \$4.53/bu., down from \$4.77 in 1988.

Futures Market

Soybean futures and options are traded on the Chicago Board of Trade. Futures are also traded on the MidAmerica Commodity Exchange.

World Production of Soybeans In Thousands of Metric Tons

Crop ³ Year	Argentina	Brazil	Canada	China	Colombia	India	Indonesia	Japan	Rep. of Korea	Mexico	Romania	Paraguay	Thailand	United States	USSR	World Total ¹
1984-5	6,750	18,278	917	9,700		955	870	238	254	550	407	950	246	50,644	469	93,140
1985-6	7,300	14,100	1,012	10,510		1,020	950	228	234	710	317	600	309	57,113	465	97,050
1986-7	7,000	17,300	960	11,610		835	900	245	199	660	472	950	356	52,801	703	98,080
1987-8	9,700	18,020	1,267	12,430		800	1,000	287	203	750	350	1,100	320	52,329	487	103,750
1988-9 ¹	6,600	23,000	1,100	11,650								1,400		42,117	472	95,190
1989-90 ²	10,500	20,500		11,300								1,400		52,704		107,540

¹ Preliminary. ² Projected. ³ Split year includes Northern Hemisphere crops harvested in the late months of the first year shown combined with Southern Hemisphere crops harvested in the early months of the following year. Source: Foreign Agricultural Service, U.S.D.A. T.627

SOYBEANS

Supply and Distribution of Soybeans in the United States In Millions of Bushels

Crop Year Begin. Sept. 1	Stocks, Sept. 1		Supply			Distribution					Total Distri- bution
	Farms	Mills, Elevators ²	Total	Production	Total Supply	Crushings	Exports	Seed	Feed	Residual	
1978-9	59.0	102.0	161.0	1,868.8	2,029.8	1,018	739.0	75.0	1.0	23.0	1,856.0
1979-0	61.5	112.6	174.1	2,260.7	2,437	1,123	875.0	—	81	—	2,079
1980-1	128.6	229.9	358.5	1,797.5	2,156	1,020	724.0	—	99	—	1,843
1981-2	153.6	159.4	313.0	1,989.1	2,302	1,030	929.0	—	89	—	2,048
1982-3	117.7	136.7	254.5	2,190.3	2,444	1,108	905	—	86	—	2,099
1983-4	118.6	226.1	344.6	1,635.8	1,981	983	743	—	79	—	1,805
1984-5	67.9	107.8	175.7	1,860.9	2,037	1,030	598	—	93	—	1,721
1985-6	143.2	172.8	316.1	2,098.5	2,415	1,053	740	—	86	—	1,879
1986-7	167.1	369.3	536.4	1,940.1	2,476	1,179	757	—	104	—	2,040
1987-8	108.0	328.5	436.4	1,922.8	2,359	1,174	802	—	81	—	2,057
1988-9 ¹	105.1	197.4	302.5	1,547.5	1,850	1,057	530	—	81	—	1,668
1989-90 ³	87.3	94.7	182.0	1,936.5	2,108	1,115	575	—	93	—	1,783

¹ Preliminary. ² Also warehouses. ³ Estimates. Source: Economic Research Service, U.S.D.A.

T.632

U.S. Soybean Price Support Program & Official Crop Production Reports In Millions of Bushels

Crop Year Begin Sept.	Quantity Put Under Support	% of Prod- uction	Sept. 1 Stocks		National Avg. Support		(In Thousands of Bushels) Crop Production Reports					
			Total	Gov't Owned	% of Parity	\$ Per Bu.	August 1	September 1	October 1	November 1	December 1	Final
1977	97.5	5.5	102.9	—	46	3.50	1,602,065	1,644,220	1,647,315	1,682,705	1,761,755	1,767,267
1978	64.2	3.4	161.0	—	51	4.50	1,765,024	1,772,364	1,792,064	1,810,389	1,870,181	1,868,754
1979	122.1	5.4	174.1	—	45	4.50	2,129,254	2,174,179	2,213,289	2,235,869	2,267,647	2,260,655
1980	133.2	7.4	358.5	.1	43	5.02	1,880,342	1,831,172	1,757,272	1,774,742	1,817,097	1,797,543
1981	221.5	11.1	313.0	.5	40	5.02	2,017,468	2,089,418	2,106,568	2,076,998	2,030,452	1,989,110
1982	396.6	18.1	254.5	20.9	39	5.02	2,293,420	2,313,880	2,300,345	2,299,520	2,276,976	2,190,297
1983	101.2	6.2	344.6	.7	39	5.02	1,843,459	1,534,969	1,517,019	1,536,519	1,595,437	1,635,772
1984	278.3	15.0	175.7	4.4	39	5.02	2,035,370	2,027,565	1,971,700	1,901,565	1,860,783	1,860,863
1985	517.5	24.7	316.1	131.3	40	5.02	1,959,439	2,062,889	2,108,379	2,129,034	2,098,531	2,098,531
1986	326.8	16.8	536.4	249.2	39	4.77	1,979,773	1,979,773	1,991,763	2,009,333	2,007,033	1,940,101
1987 ¹	274.8	14.4	436.4	—	—	4.77	2,000,349	1,956,859	1,968,069	1,959,949	1,904,712	1,922,762
1988 ¹	—	—	302.5	—	—	4.77	1,473,986	1,472,376	1,501,381	1,511,876	—	1,547,541
1989 ¹	—	—	182.0	—	—	4.53	1,905,300	1,889,265	1,926,385	1,936,545	—	—

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.628

Soybean Stocks in the United States In Millions of Bushels

Year	On Farms				Off Farms				Total Stocks			
	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1
1985	N.A.	326.6	143.2	1,030.9	N.A.	281.8	172.8	929.0	N.A.	608.4	316.1	1,959.8
1986	699.3	411.7	167.1	1,061.0	671.9	437.2	369.3	895.6	1,371.3	848.9	536.4	1,956.6
1987	589.0	282.1	108.0	865.3	750.0	554.7	328.5	890.2	1,339.0	836.8	436.4	1,755.5
1988 ¹	553.1	304.9	105.1	650.0	594.6	351.4	197.4	716.8	1,147.7	656.3	302.5	1,366.8
1989 ¹	415.0	229.2	87.3	793.4	475.2	235.3	94.7	817.1	890.2	464.5	182.0	1,610.5

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.629

U.S. Commercial Stocks of Soybeans on the First of the Month In Millions of Bushels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	76.5	71.5	73.2	72.3	56.5	52.6	53.2	51.8	44.8	51.5	80.6	79.5
1981	73.1	71.1	69.0	53.1	45.3	35.7	24.7	19.0	11.2	12.6	40.7	51.7
1982	50.6	50.4	41.1	39.9	34.7	67.4	21.5	18.4	11.5	12.8	43.9	53.5
1983	53.6	58.2	57.5	55.7	55.9	44.7	34.9	35.8	42.5	47.0	78.8	83.0
1984	77.2	74.4	65.2	58.6	49.2	41.1	35.4	20.8	7.9	6.7	23.3	41.7
1985	41.1	44.0	38.2	33.3	22.8	14.7	12.7	11.3	6.9	9.6	47.6	60.9
1986	61.7	63.9	57.3	53.6	40.2	30.5	24.9	24.5	24.8	30.1	52.5	61.5
1987	62.0	61.4	56.9	52.5	49.4	46.3	38.4	26.0	16.6	21.3	56.5	57.1
1988	63.0	66.9	63.6	61.2	54.6	51.7	53.2	54.5	46.0	41.6	74.7	80.9
1989	81.3	75.6	—	—	—	—	21.1	18.6	14.1	11.4	—	71.3

Source: Foreign Agricultural Service, U.S.D.A.

T.630

SOYBEANS

Salient Statistics of Soybeans in the United States

Crop Year	Acreage Harvested		Yield Per Acre (Bus.)	Farm Price (\$ Bu.)	Farm Value (Million Dollars)	Pounds Per Bushel Crushed		Grand Total	U.S. Exports of Soybeans Crop Year (Sept.-Aug.) (Ths. Metric Tons)							
	Planted — 1,000 Acres —	— 1,000 Acres —				Yield of Oil	Yield of Meal		Bel-Luxem.	Spain	Canada	W. Germany	Japan	Netherlands	Taiwan	U.S.S.R.
1976-7	50,226	49,401	26.1	6.81	8,776	11.09	47.81	15,351	411	1,030	462	1,520	3,219	3,007	697	825
1977-8	58,760	57,830	30.6	5.88	10,383	10.39	47.34	19,061	475	1,532	264	1,521	3,636	4,086	854	744
1978-9	64,708	63,663	29.4	6.66	12,450	11.07	47.63	20,117	420	1,475	352	1,486	3,865	4,012	1,271	1,178
1979-0	71,411	70,343	32.1	6.28	14,204	10.74	48.01	23,818	584	2,203	392	1,318	3,868	6,035	780	813
1980-1	60,930	67,813	26.5	7.57	13,601	11.09	47.93	19,712	670	1,383	345	1,791	3,816	3,839	1,063	
1981-2	67,543	66,163	30.1	6.04	12,005	10.72	47.86	25,285	1,404	3,855	310	2,135	4,196	5,349	1,059	683
1982-3	70,884	69,442	31.5	5.65	12,463	10.76	47.88	24,634	1,259	2,313	324	1,813	4,580	4,648	1,300	199
1983-4	63,779	62,525	26.2	7.83	12,775	11.26	47.36	20,215	882	1,800	248	967	4,394	2,988	1,382	408
1984-5	67,755	66,113	28.1	5.84	10,748	11.05	47.15	16,279	658	1,084	140	718	3,828	2,857	1,389	0
1985-6	63,130	60,385	34.1	5.05	10,581	11.01	47.27	20,158	784	1,519	114	934	4,293	3,056	1,506	1,519
1986-7	60,385	58,292	33.3	4.78	9,263	10.86	47.08	20,600	888	1,775	206	1,393	4,024	3,540	1,968	71
1987-8 ¹	57,955	56,977	33.7	5.88	11,305	11.04	47.76	21,870	825	1,593	154	1,416	3,914	4,267	1,857	831
1988-9 ¹	58,960	57,483	26.9	7.35	11,307	11.16	47.43	14,350	474	1,152	112	601	3,251	3,531	1,439	240
1989-0 ²	60,475	59,073	32.8	5.38	10,732											

¹ Preliminary. ² Forecast. Source: Crop Reporting Board, U.S.D.A.

T 631

Production of Soybeans for Beans in the U.S., by Selected States In Millions of Bushels

Year	Ark.	So. Car.	Ill.	Ind.	Iowa	La.	Mich.	Minn.	Miss.	Mo.	N. Car.	Ohio	Tenn.	Nebr.	Ky.
1975	117.5	30.4	299.5	121.6	237.0	48.0	15.9	98.6	70.2	113.3	33.4	102.3	46.3	32.4	29.7
1976	82.1	21.4	249.5	111.5	200.0	63.0	11.6	66.4	71.5	84.0	24.6	95.0	40.5	19.6	28.9
1977	105.8	26.7	336.3	144.3	251.3	63.0	21.6	133.8	78.5	148.8	29.0	120.0	52.2	40.7	40.9
1978	115.2	32.3	309.5	144.2	283.1	76.0	21.6	146.2	81.7	155.0	40.3	127.7	56.9	42.5	40.8
1979	144.2	39.8	379.1	159.1	306.4	93.8	30.3	162.6	118.9	183.6	45.8	144.8	70.7	54.7	54.0
1980	65.3	20.8	309.9	157.7	318.4	67.0	30.4	149.9	61.6	135.5	34.7	135.4	45.9	53.1	36.0
1981	99.0	31.0	351.5	151.8	326.0	64.2	29.1	139.2	75.6	155.6	46.3	99.8	61.1	78.7	47.9
1982	105.6	39.6	354.2	173.3	306.6	75.4	35.3	169.1	92.3	171.0	52.5	133.2	61.0	78.8	51.3
1983	70.3	23.6	267.0	122.5	278.6	68.1	33.8	151.8	58.9	103.0	33.0	105.0	31.5	59.0	24.5
1984	101.4	29.8	284.1	150.1	264.6	66.8	32.1	172.9	76.8	108.7	46.5	137.6	48.1	66.3	42.3
1985	98.1	24.6	382.5	185.1	309.7	44.1	34.6	160.0	70.7	180.4	39.1	160.6	45.3	85.0	41.8
1986	66.0	13.7	360.0	157.3	350.7	35.0	28.8	162.8	41.7	170.6	36.7	146.6	35.5	93.1	35.8
1987	71.5	15.7	330.6	174.0	343.7	38.8	38.2	181.4	47.8	154.6	32.8	147.3	28.8	83.4	24.0
1988	83.2	18.2	234.9	115.5	248.0	56.6	33.9	124.8	49.5	110.0	38.1	99.9	34.3	70.8	24.1
1989 ¹	80.0	21.1	350.0	177.5	313.5	32.6	39.2	185.0	40.0	124.7	40.0	130.4	34.3	76.5	38.6

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T 633

Soybean Stocks at U.S. Mills on First of Month In Millions of Bushels

Crop Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1978-9	37.9	31.9	138.4	149.4	127.3	112.4	124.0	120.9	96.7	71.1	73.0	55.6
1979-0	37.5	39.2	166.5	184.5	163.3	145.4	130.7	118.6	95.8	79.7	75.7	73.9
1980-1	56.9	80.4	166.0	172.0	138.7	125.9	105.4	97.2	84.4	67.8	49.2	43.9
1981-2	33.4	31.5	105.8	135.2	114.5	99.8	84.6	79.2	72.2	60.8	51.2	43.6
1982-3	30.0	29.0	114.2	145.5	125.1	116.2	98.5	96.2	84.6	69.8	62.0	55.4
1983-4	58.6	63.9	124.5	142.3	124.0	125.3	114.8	105.3	94.2	101.7	83.4	57.7
1984-5	35.3	19.7	53.9	116.4	98.4	85.9	65.8	69.7	65.2	53.4	47.6	36.0
1985-6	26.7	25.7	92.8	113.4	119.9	124.6	97.5	84.9	67.6	53.2	40.7	40.2
1986-7	28.5	38.3	108.1	127.4	117.2	113.1	105.4	90.2	85.2	72.9	63.6	49.8
1987-8	31.2	65.7	158.5	155.5	145.0	141.8	139.3	133.8	113.9	95.4	90.1	66.2
1988-9 ¹	59.7	61.4	136.6	147.4	138.6	131.9	112.0	99.2	72.8	52.5	46.1	31.0
1989-90 ¹	23.8	24.5	96.3									

¹ Preliminary. Sources: Economic Research Service, U.S.D.A.

T 635

SOYBEANS

Soybean Exports from the United States In Millions of Bushels

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Total
1978-9	38.0	87.6	101.7	70.6	77.0	53.2	83.5	67.7	46.8	40.9	32.7	39.7	739.2
1979-0	40.9	88.9	118.1	78.3	85.8	73.0	69.4	81.3	74.2	58.7	49.1	57.7	875.2
1980-1	41.4	60.3	75.0	74.5	71.7	55.5	103.2	60.0	69.6	41.8	29.6	41.8	724.3
1981-2	50.9	100.8	103.7	73.6	84.3	89.4	79.0	85.7	90.6	59.8	53.8	57.5	929.1
1982-3	58.0	94.4	93.6	90.1	86.3	87.2	84.4	73.3	58.5	67.7	51.6	60.2	905.2
1983-4	53.9	67.6	69.2	74.5	80.4	79.7	78.8	68.5	56.8	41.1	39.2	30.7	686.6
1984-5	19.0	40.9	93.5	84.8	70.3	72.6	59.8	60.4	33.1	18.2	19.2	26.3	598.2
1985-6	31.5	55.3	79.6	94.1	84.7	92.1	89.9	80.4	57.2	28.7	26.6	20.4	740.7
1986-7	30.2	89.7	96.6	89.0	71.7	73.8	67.8	53.9	37.6	37.9	54.3	54.5	756.9
1987-8	59.4	191.1	100.4	81.1	80.8	97.0	78.5	66.7	39.7	29.3	30.4	37.2	801.7
1988-9 ¹	26.9	50.2	61.3	69.3	66.6	56.8	67.9	41.4	23.6	31.6	16.7	18.3	530.4

¹ Preliminary. Source: Bureau of the Census

T 636

High, Low & Closing Prices of May Soybean Futures at the Chicago Board of Trade In Cents per Bushel

Year of Delivery	Year Prior to Delivery												Delivery Year			Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1983 High	713	729½	723½	704½	678½	664½	611½	588	607¾	595½	620	622	643¾	655½	643	746
Low	667½	698	687½	670	651	593½	572½	558½	570½	576¼	577	572½	577½	620¼	610¼	558½
Close	696	716½	687½	671	654¾	601	574¼	568¼	594	581¾	618½	575½	637	640¼	621½	—
1984 High	718	732	720	678	794	984	996	927	903½	853	825	768	815	813	894	996
Low	645	695½	659	630	657½	760	859½	831	791	775½	738	706	762	765	768½	630
Close	714	719	659½	660	761	930	890	851	822	843½	747½	765	789	771	888	—
1985 High	773	777	784	797	764	700	675	678	676½	640½	624	619½	614	609¾	590¾	797
Low	753	737	744½	736	940	643½	601	623	623	597¼	581¾	572	570¾	585	568	568
Close	768½	737	777	761	646½	675	627	659¾	634¼	599	613¼	573	605½	588	568	—
1986 High	645	650	637	616	618	560½	560½	551½	557	567	566½	545	548	563	549	650
Low	608½	631	583½	577	547	531¼	532	534¼	549	504	537	523¼	527¼	519½	527	504
Close	643½	636½	590½	583	555¼	541	547½	548¾	513	554	542½	529¾	541½	544	534½	—
1987 High	554	574	574	536	541½	529½	513¾	514	512	511¼	502¼	500¾	498	536	584	584
Low	535½	522	529½	509½	504½	492	491¾	493¼	501	489	489	478½	482½	496½	531¼	478½
Close	544¾	564½	529½	510	525	502	508½	509	510½	498¼	498¾	483	496½	534½	549½	—
1988 High	505½	554	634	650	577	539	554¼	576	626½	629½	651	656	656	690	784	784
Low	488	509	549½	566	532	509	520½	540½	538½	592¼	610	603½	608	656	682	476
Close	504	554	579	575	547½	521¾	550½	549½	618½	622	616½	642½	653½	689½	777	—
1989 High	693	735	828	1003	960	882	912	843	826	828	842	788	794½	761	771	1,003
Low	647	702½	727	814	747	806	816½	782	748	767½	752	732½	733	704½	723½	642
Close	693	735	828	935½	795	870	826¾	802¼	779½	827¼	784½	773½	738¼	722½	739	—
1990 High	778	769	750	700	730	628	626	624	621½	613	599¾					
Low	732½	711	651	641	601½	589	597	573½	593¼	592¼	566¼					
Close	734	730½	651	673	601¾	618¾	602½	595½	607¼	596	573½					

Source: Chicago Board of Trade

T 634

Volume of Trading in Soybean Futures at the Chicago Board of Trade In Millions of Bushels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	3,701	5,038	4,123	3,856	3,686	5,485	4,184	2,843	2,920	3,946	3,115	2,674	45,572
1980	3,222	2,916	2,808	3,035	2,911	3,602	6,803	5,226	6,562	7,706	7,025	7,024	58,841
1981	5,808	4,074	4,796	4,585	3,917	4,737	4,821	3,897	3,626	4,087	3,765	4,337	52,450
1982	3,120	3,497	4,478	4,484	3,517	4,245	4,017	3,822	3,197	4,014	4,282	3,198	45,828
1983	3,942	3,820	4,247	4,375	4,259	4,409	6,224	8,799	7,852	8,071	6,793	5,609	68,402
1984	5,550	5,247	6,008	4,945	7,300	6,323	5,314	4,045	2,505	3,687	3,427	2,463	56,813
1985	3,315	2,749	2,657	2,821	2,766	3,309	3,779	2,581	2,525	3,364	3,881	3,213	36,961
1986	3,692	2,484	2,435	2,976	2,546	2,199	2,925	2,049	1,812	3,266	2,473	1,811	30,668
1987	2,174	1,816	1,794	3,118	3,969	4,356	3,785	1,935	2,305	4,109	3,674	3,859	36,894
1988	4,436	4,252	4,284	4,822	6,339	7,975	5,574	5,214	4,516	5,235	5,001	4,777	62,485
1989	5,222	4,265	4,760	4,720	4,587	4,466	3,977	3,699	2,854	3,172	3,247	2,893	48,174
1990	3,278												

Source: Commodity Futures Trading Commission

T 638

SOYBEANS



Month-End Open Interest of Soybean Futures at Chicago Board of Trade In Millions of Bushels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1979	613.9	719.0	642.0	576.1	562.2	584.4	514.4	477.1	534.9	564.7	630.4	704.3
1980	533.2	540.0	502.2	449.6	513.5	615.0	703.5	784.4	880.4	1,069.6	1,102.7	1,056.4
1981	645.7	586.9	565.0	551.4	523.3	513.6	470.3	455.7	449.1	523.2	491.4	426.6
1982	400.8	391.6	435.2	422.1	399.1	377.0	400.2	353.7	357.7	422.9	433.3	424.7
1983	465.3	413.9	485.7	507.5	428.5	401.2	547.5	714.3	745.7	684.1	648.2	603.2
1984	548.3	548.9	556.2	494.5	577.1	428.7	316.2	275.1	287.0	339.4	351.2	343.2
1985	359.5	359.2	327.9	311.9	320.2	321.5	329.9	331.6	307.9	390.1	370.5	386.4
1986	373.3	376.5	385.4	371.7	328.7	323.2	287.7	296.3	309.7	426.5	408.7	392.2
1987	383.7	363.7	414.2	445.5	452.1	432.4	368.0	354.9	426.4	485.8	621.1	550.4
1988	580.0	615.7	636.4	701.7	802.9	725.1	561.3	576.0	601.3	561.3	583.6	604.4
1989	579.1	561.1	541.8	489.4	476.7	432.1	416.2	366.2	457.9	487.4	479.3	471.0
1990	480.6											

Source: Chicago Board of Trade

T.642

SOYBEANS

Soybeans Under Price Support Through the End of the Month (Cumulative Total from Current Season's Crop) In Thousands of Bushels

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1978-9	0	6,403	31,008	43,015	58,278	61,489	62,365	63,146	63,508	65,087	—	—
1979-0	11	9,507	39,559	67,372	101,052	106,135	113,638	119,860	121,684	122,013	—	—
1980-1	22	11,705	28,541	67,744	100,809	116,167	125,480	130,236	132,346	133,160	—	—
1981-2	1,044	26,019	81,377	138,202	191,386	208,285	216,412	219,743	144,165	221,303	—	—
1982-3	861	50,145	203,031	311,105	363,696	382,536	391,432	393,567	394,727	395,893	—	—
1983-4	0	9,098	32,869	62,736	84,526	92,974	98,945	100,030	100,656	100,817	—	—
1984-5	0	46,349	99,437	174,002	242,526	258,174	268,812	271,353	274,051	275,687	—	—
1985-6	1,056	86,633	265,929	408,793	482,658	499,223	506,818	511,462	513,089	513,954	—	—
1986-7	313	34,971	154,207	240,072	299,018	316,598	321,327	327,233	329,094	329,766	329,971	—
1987-8	4,383	58,666	165,997	209,121	259,010	211,856	272,632	274,046	274,774	274,952	274,929	—
1988-9	896	16,805	44,627	81,131	106,033	115,210	118,487	119,356	119,674	120,033	120,034	—
1989-90	294											

Source: U.S. Department of Agriculture

T.639

Soybeans Crushed (Factory Consumption) in the U.S. In Millions of Bushels—One Bushel = 60 Pounds

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Total
1978-9	71.4	89.3	89.6	96.4	90.6	81.5	89.0	83.3	86.9	82.8	80.6	76.4	1,018
1979-0	75.9	95.8	101.4	104.4	106.6	100.0	102.2	92.0	93.8	82.7	84.9	83.7	1,123
1980-1	81.0	97.8	98.5	94.1	92.2	79.6	88.7	85.4	82.3	73.4	72.3	74.6	1,020
1981-2	75.4	104.5	97.6	102.5	94.9	86.7	85.1	81.0	86.6	77.1	70.6	67.8	1,030
1982-3	76.0	100.2	108.1	111.9	110.0	93.0	94.6	81.8	83.7	81.5	81.6	85.7	1,108
1983-4	86.6	96.4	86.6	89.4	93.8	79.2	86.0	74.6	79.4	70.6	69.0	71.1	982.7
1984-5	65.5	89.2	98.9	101.1	94.5	80.8	85.6	83.2	89.3	82.7	82.0	77.5	1,030
1985-6	76.5	94.3	96.7	100.8	99.6	81.4	91.6	84.4	86.3	79.6	83.1	78.4	1,053
1986-7	79.4	107.0	109.4	107.6	110.3	102.3	106.0	95.9	95.3	90.6	92.6	82.4	1,179
1987-8	79.7	102.5	111.2	110.8	106.7	99.8	107.6	102.6	98.0	89.2	88.0	78.3	1,174
1988-9 ¹	79.9	94.4	101.0	100.7	99.8	85.8	93.5	89.6	87.0	76.0	74.0	75.9	1,057
1989-90 ¹	74.1	94.8											

¹ Preliminary. Source: Bureau of the Census

T.641

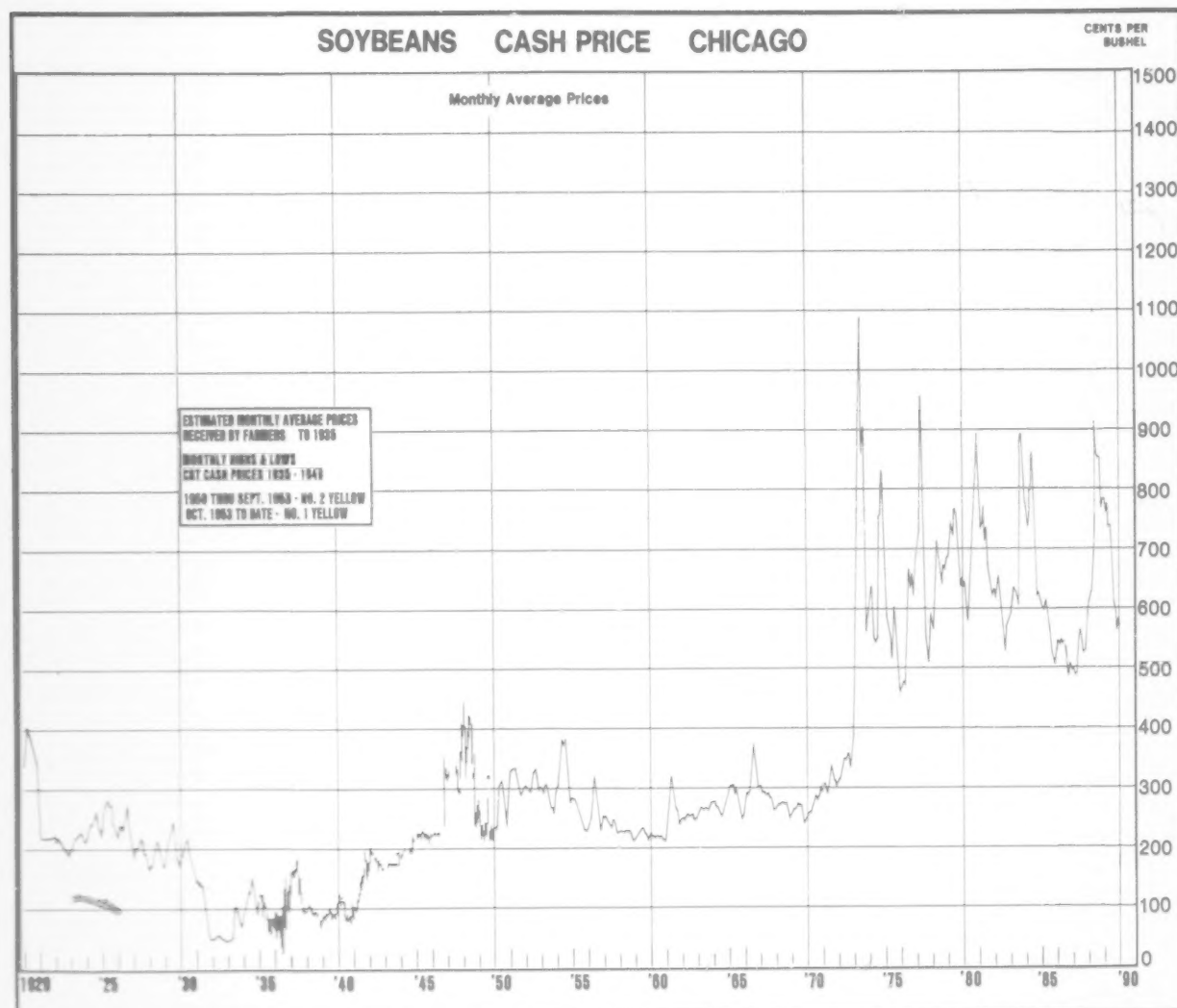
Average Price Received by Farmers for Soybeans in the U.S. In Cents Per Bushel

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
1978-79	620	626	641	649	658	699	716	706	706	736	736	707	666
1979-80	681	635	630	627	639	620	594	563	576	591	675	718	628
1980-81	759	768	818	780	780	750	759	760	740	705	713	671	757
1981-82	621	606	603	600	613	604	604	617	627	612	599	559	604
1982-83	522	506	534	546	556	566	582	609	606	590	627	757	565
1983-84	828	796	780	774	785	728	768	783	812	799	695	650	783
1984-5	609	608	602	582	591	577	588	588	570	562	542	510	584
1985-6	499	485	492	500	516	518	523	523	525	519	511	499	505
1986-7	485	455	464	467	470	469	473	490	520	536	525	502	478
1987-8	502	504	536	563	573	596	605	639	698	818	850	833	615
1988-9	793	753	743	753	769	741	751	729	721	706	683	607	729
1989-90	570	528	562										

Source: Crop Reporting Board

T.637

SOYBEANS



Average Cash Price of No. 1 Yellow Soybeans at Illinois Processor In Cents per Bushel

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average
1976-7	516	622	655	686	706	726	825	960	942	825	640	549	721
1977-8	642	507	584	594	573	565	658	681	701	676	662	647	624
1978-9	704	672	668	681	689	728	745	727	721	768	764	728	716
1979-0	813	656	652	653	636	642	607	580	604	610	722	745	660
1980-1	644	827	891	773	757	734	737	772	758	713	736	694	753
1981-2	540	630	628	623	630	624	616	642	656	631	620	573	618
1982-3	893	526	570	573	581	586	598	635	627	606	659	846	640
1983-4	621	846	820	777	767	737	797	798	861	791	685	663	786
1984-5	519	627	625	607	604	597	608	613	595	588	565	528	598
1985-6	496	505	519	532	545	538	547	540	544	543	533	500	530
1986-7	527	489	508	496	495	489	492	512	552	563	547	528	514
1987-8	527	532	564	594	617	621	630	671	731	913	859	852	676
1988-9	852	792	767	783	783	760	778	739	740	725	708	606	753
1989-90	600	564	NA	582									

Source: Agricultural Marketing Service, U.S.D.A.

T.643

Stock Index Futures

Despite deteriorating corporate earnings, the collapse of several leveraged buy-outs (LBOs), and a 190-point one-day drop in the Dow Jones Industrials, the bull market that began in 1982 ended 1989 with enough momentum for the Dow to set an all-time high of 2834.04 on January 3, 1990.

The old high was 2791.41, set on October 9, 1989, on expectations that United Airlines would be taken over by management and unions or a raider at \$300 a share. UAL Corp. stock, below 100 before takeover rumors began, hit a high of \$294, as risk arbitrageurs built positions in anticipation of closing the deal. But UAL eroded in the week following the Dow's peak, as banks that had signed up to finance the \$7.5 billion LBO got cold feet. When the news was confirmed on Friday, October 13, trading in UAL was halted with the stock at \$279 3/4. Desperate risk arbitrageurs then dumped other stocks to meet margin calls. By the end of the session, the Dow was off 190 points.

However, there was little followthrough. The market opened only 40 points lower on October 16, and bargain hunters rushed in. UAL ended that week off \$111 1/4 at \$168 1/2, while the Dow Industrials regained more than 100 points. The Dow Transports never approached the all-time high of 1532.01, set September 5 amid Donald Trump's plans to buy AMR, the parent company of American Airlines. That deal died when the UAL financing evaporated. However, the Transports still ended 1989 up 21 percent at 1177.81. The Dow Utilities

benefited from lower interest rates, which offset poor earnings and dividend cuts and omissions. Although the Utilities' P/E rose to 17.9 from 11.3 as earnings collapsed to \$13.14 from \$16.52 a year earlier, the index closed up 26 percent at 235.04, just below its peak of 235.98 set on December 15.

The broader indices were also sharply higher. The S&P 500 gained 27.2 percent, the Amex Composite rose by 23.5 percent, the NYSE Index gained 24.8 percent, and the Wilshire 5000 rose by 24.9 percent. However, trading was dominated by institutions. Most small investors remained sidelined, where they had been since the October 1987 crash.

The Japanese stock market repeated its strong performance of 1988, again defying P/E ratios of 70 or more, compared with 11.8 for the Dow Industrials. The Nikkei Index of 225 stocks gained 29 percent to close the year at 38,915.87. The collapse of the Warsaw Pact made West Germany the hottest stock market as the year ended.

Futures Markets

S&P 500 futures and options on that contract are traded on the Chicago Mercantile Exchange. Nikkei Index futures are listed on both the Tokyo Stock Exchange and the Singapore Monetary Exchange. Other futures include: the NYSE Index, Value Line Index, Major Market Index, Financial Times Index, and Toronto Stock Exchange 300 Composite Index.

Month-End Open Interest of NYSE Composite Stock Index Futures at New York in Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	9,348	9,874	8,571	8,454	9,376	7,957	7,918	10,968	9,710	9,181	7,745	7,149
1985	11,062	10,884	9,804	9,438	13,672	9,677	12,102	10,388	7,218	7,011	8,131	9,381
1986	10,164	13,992	15,320	13,809	15,902	10,503	11,662	11,883	21,880	18,816	20,740	9,306
1987	11,893	13,228	13,007	14,682	11,000	9,115	13,059	18,768	12,819	9,431	8,887	5,106
1988	5,365	6,033	6,800	6,968	9,534	6,958	6,410	7,579	6,408	7,269	7,246	5,276
1989	6,640	8,569	7,835	7,828	7,245	6,306	6,305	6,214	6,311	6,101	6,878	5,617

Source: New York Futures Exchange

T.643E

Month-End Open Interest of KC Value Line Stock Index Futures at Kansas City in Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	4,019	5,032	3,241	3,235	3,669	3,041	3,811	5,305	3,000	4,195	5,244	3,888
1985	7,563	7,332	5,741	6,197	8,634	6,556	11,707	10,695	7,576	7,765	11,926	16,844
1986	16,536	19,310	15,129	15,568	14,607	8,603	7,941	7,442	6,478	6,625	6,543	8,735
1987	10,822	11,323	7,118	7,133	6,461	4,645	5,320	5,596	3,447	3,701	2,851	1,524
1988	1,451	1,804	2,990	3,110	3,367	1,637	1,520	1,346	1,301	1,165	1,840	1,531
1989	1,402	1,179	1,245	1,298	1,478	1,453	1,717	1,753	1,393	1,216	1,228	1,238

Source: Kansas City Board of Trade

T.643F

Month-End Open Interest of Maxi Major Market Stock Index Futures at Chicago (CBT) in Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1986	4,350	5,973	7,760	5,028	7,290	8,765	8,407	7,524	8,351	7,558	7,268	4,713
1987	7,389	6,671	6,137	12,882	5,614	6,029	8,579	12,079	8,866	4,244	3,074	2,233
1988	2,030	3,000	6,168	6,224	7,433	3,086	2,740	3,005	4,125	4,714	4,894	6,387
1989	6,566	4,190	5,232	4,038	3,540	4,290	4,814	3,342	4,310	5,306	4,348	5,017

Source: Chicago Board of Trade

T.643H

STOCK INDEX FUTURES

High, Low & Closing Prices of the December S&P 500 Stock Index Futures at Chicago IMM

Year of Delivery		Yr. Prior to Del.		Jan.	Feb.	Mar.	Apr.	May	Delivery Year		Aug.	Sept.	Oct.	Nov.	Dec.	Life of Delivery Range
		Nov.	Dec.						June	July						
1985	High	181.05	191.25	194.90	196.50	191.90	198.00	199.10	200.85	195.75	191.40	190.45	204.50	213.85	213.85	213.85
	Low	178.40	175.40	188.75	187.00	186.20	185.35	191.55	192.20	188.75	180.65	182.10	189.10	200.40	175.40	
	Close	178.40	189.75	193.55	190.20	187.20	186.40	196.65	193.85	189.90	182.80	189.25	202.40	210.90	—	
1986	High	220.90	223.30	237.20	249.50	252.10	254.80	255.30	257.25	256.85	256.40	244.80	249.95	256.05	257.25	257.25
	Low	215.70	209.50	218.00	230.20	232.40	235.60	241.20	234.40	232.95	226.10	229.80	235.20	244.75	209.50	
	Close	219.30	220.50	234.90	247.30	239.55	252.20	254.25	237.55	254.35	230.60	244.70	248.65	249.60	—	
1987	High	251.40	286.50	293.00	309.20	310.00	305.30	315.90	322.90	342.35	336.20	333.00	258.20	248.90	342.35	342.35
	Low	243.20	248.10	278.00	287.10	278.50	281.70	291.50	306.30	317.30	311.30	181.00	225.00	220.80	181.00	
	Close	244.55	277.80	287.75	294.95	293.10	293.75	305.95	322.80	333.80	325.85	259.35	232.00	243.15	—	
1988	High	—	262.20	273.00	277.50	277.30	267.40	282.10	281.20	278.35	277.70	285.75	282.00	279.80	285.75	285.75
	Low	—	258.00	252.60	259.70	257.60	252.20	266.50	265.00	258.90	259.25	270.50	263.50	270.70	252.20	
	Close	—	261.60	271.35	262.20	264.50	266.40	277.60	275.70	264.10	276.40	279.10	273.05	274.35	—	
1989	High	—	309.80	313.10	312.80	322.10	333.60	338.00	352.45	358.80	359.85	364.50	347.75	354.90	364.50	364.50
	Low	—	306.00	298.90	299.60	306.20	314.50	322.00	323.95	344.40	345.50	323.85	332.30	345.80	298.90	
	Close	—	309.50	301.55	306.65	320.60	330.05	325.00	352.25	356.35	352.70	343.40	347.60	352.08	—	
1990	High	343.85														343.85
	Low	333.50														
	Close	343.85														

Source: Chicago Mercantile Exchange, International Monetary Market.

T.643B

High, Low & Closing Prices of the December NYSE Composite Stock Index Futures at N.Y. Futures Exch.

Year of Delivery		Yr. Prior to Delivery		Jan.	Feb.	Mar.	Apr.	May	Delivery Year		Aug.	Sept.	Oct.	Nov.	Dec.	Life of Delivery Range
		Nov.	Dec.						June	July						
1986	High	—	127.05	129.10	136.30	144.20	145.35	146.55	146.70	148.00	147.65	146.65	141.05	143.30	146.50	148.00
	Low	—	124.85	121.00	126.90	133.55	134.60	135.60	139.00	133.90	133.90	128.00	131.80	135.15	139.90	121.00
	Close	—	126.45	127.15	134.90	142.60	138.15	144.70	145.95	136.55	145.95	132.60	140.95	142.35	142.65	—
1987	High	—	144.50	163.00	166.50	175.25	175.45	171.45	177.15	181.20	191.45	188.15	186.35	144.70	140.00	191.45
	Low	—	139.70	143.00	158.25	164.00	157.75	159.00	164.10	172.25	178.25	174.45	103.00	126.35	124.10	103.00
	Close	—	139.70	158.80	163.95	167.60	165.35	164.80	172.25	181.05	186.80	182.65	144.35	130.40	139.20	—
1988	High	—	144.95	150.15	153.40	155.50	156.60	150.60	159.20	159.00	156.95	156.85	160.75	158.80	157.25	160.75
	Low	—	140.40	137.95	142.55	147.50	145.50	143.30	151.00	149.95	146.70	147.00	152.95	148.45	152.50	137.95
	Close	—	140.75	147.05	152.95	148.50	149.55	150.60	156.90	156.00	149.85	156.15	157.05	153.65	154.15	—
1989	High	—	163.40	173.00	174.70	174.95	179.75	185.70	188.10	196.10	199.30	199.80	201.95	192.25	196.15	201.95
	Low	—	162.00	160.80	167.45	167.50	172.00	176.25	179.50	180.90	191.70	191.95	176.00	184.20	191.30	160.80
	Close	—	163.40	173.00	168.70	172.15	179.25	183.85	181.25	196.10	197.95	195.90	189.75	192.15	193.75	—
1990	High	—	202.20													202.20
	Low	—	199.00													
	Close	—	202.20													

Source: New York Futures Exchange.

T.643C

High, Low & Closing Prices of the December Value Line Stock Index Futures at K.C. Board of Trade

Year of Delivery		Yr. Prior to Delivery		Jan.	Feb.	Mar.	Apr.	May	Delivery Year		Aug.	Sept.	Oct.	Nov.	Dec.	Life of Delivery Range
		Nov.	Dec.						June	July						
1986	High	—	226.25	228.35	235.30	250.00	251.90	251.60	247.65	250.10	237.60	240.00	231.00	233.60	235.60	251.90
	Low	—	219.00	217.50	224.20	235.20	236.00	237.00	240.70	221.30	218.70	210.80	215.50	220.90	226.50	210.80
	Close	—	222.00	223.65	235.30	246.90	240.30	248.00	245.80	222.45	235.15	218.80	230.65	230.00	231.00	—
1987	High	—	—	242.50	258.60	272.40	272.10	263.70	270.70	278.70	288.50	285.60	281.70	207.25	202.10	288.50
	Low	—	—	240.00	246.70	258.15	245.80	246.00	255.10	264.30	274.30	266.00	170.00	182.50	179.20	170.00
	Close	—	—	241.85	258.10	261.80	255.90	255.30	263.70	278.00	283.65	278.15	198.00	188.25	201.95	—
1988	High	—	—	—	—	242.65	245.75	239.55	253.80	255.60	251.60	248.90	251.50	245.90	242.90	255.60
	Low	—	—	—	—	230.80	231.55	227.25	240.70	244.40	236.60	237.00	243.80	230.80	236.50	227.25
	Close	—	—	—	—	234.25	238.70	237.10	253.80	251.20	240.90	247.80	245.10	237.30	241.12	—
1989	High	—	—	—	—	275.40	278.90	285.00	294.20	298.80	306.00	311.00	311.05	290.20	293.00	311.50
	Low	—	—	—	—	268.20	270.40	275.00	283.35	287.60	287.20	300.30	300.60	271.00	281.55	268.20
	Close	—	—	—	—	271.05	275.50	285.00	294.00	289.55	304.25	309.55	306.70	289.15	286.95	—

Source: Kansas City Board of Trade.

T.643A

STOCK INDEX FUTURES

Month-End Open Interest of S&P 500 Stock Index Futures at Chicago IMM in Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	34,012	38,441	27,931	33,389	34,200	28,395	33,971	31,973	31,610	46,104	53,530	42,191
1985	58,332	62,142	57,664	58,131	72,642	58,890	60,612	60,718	53,629	65,568	74,909	62,879
1986	63,660	86,224	78,431	73,268	99,371	83,100	112,015	107,016	125,304	138,262	144,347	95,433
1987	107,929	123,021	97,673	121,860	128,356	109,452	115,389	129,539	114,182	152,340	139,887	107,973
1988	118,583	122,741	110,129	116,738	134,175	98,175	114,248	119,496	114,434	125,889	141,766	120,511
1989	139,535	135,398	134,158	136,181	140,287	110,764	122,096	135,826	123,256	126,768	124,470	107,195

Source: International Monetary Market (Chicago)

T 643D

High, Low & Closing Prices of the September Major Market Maxi Stock Index Futures at Chicago BOT

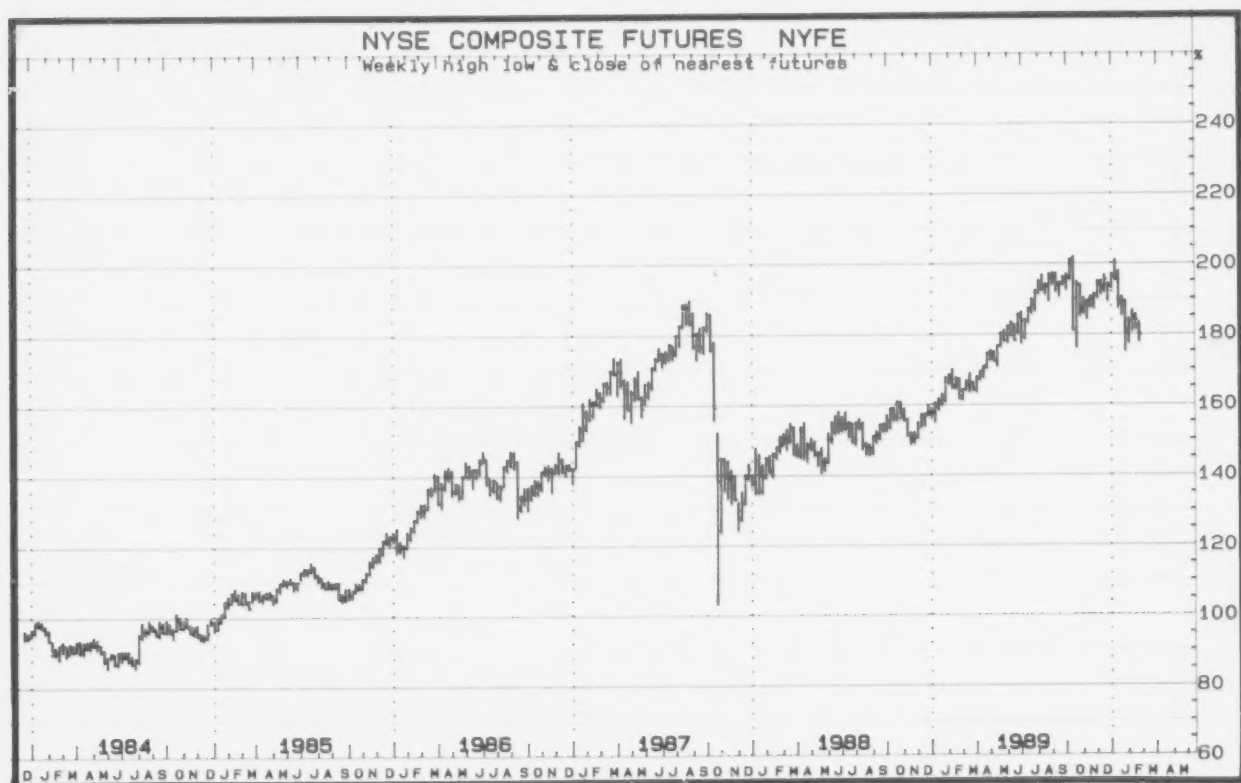
Year of Delivery	Jan.	Feb.	Mar.	Apr.	Delivery Year May	June	July	Aug.	Sept.	Life of Delivery Range
1986 High	287.00	299.00	272.60	353.50	362.10	365.70	366.90	368.80	368.00	368.80
Low	272.60	272.60	272.60	272.60	333.90	348.60	336.00	336.00	335.00	272.60
Close	272.60	272.60	272.60	340.70	357.40	363.65	342.75	364.20	336.65	—
1987 High	—	—	—	477.50	472.00	486.60	500.60	543.30	535.50	543.30
Low	—	—	—	439.00	436.50	450.00	476.30	494.30	495.70	436.50
Close	—	—	—	452.00	453.60	476.90	499.75	530.40	497.18	—
1988 High	—	—	392.50	416.50	401.20	422.00	422.20	419.10	413.90	422.20
Low	—	—	386.50	387.50	377.70	398.50	398.50	387.40	388.50	377.70
Close	—	—	391.00	398.00	397.90	416.20	414.30	395.90	409.66	—
1989 High	—	—	—	—	—	501.40	522.20	541.50	542.50	542.50
Low	—	—	—	—	—	479.30	481.40	517.00	518.30	479.30
Close	—	—	—	—	—	483.10	522.10	537.15	522.85	—

Source: Chicago Board of Trade

T 643C



STOCK INDEX FUTURES



STOCK INDEX FUTURES



STOCK INDEX FUTURES



Sugar

World sugar prices climbed from a low of less than 3 cents/lb. in mid-1985 to 15 cents in late 1989. Gains in world sugar production failed to keep pace with rising consumption, forcing a persistent drawdown in stocks.

World sugar production in 1989/90 was forecast at a record 106-107 million tonnes, up at least one million tonnes from 1988/89. World consumption was projected to be the highest ever at 108.7 million tonnes. For the fifth consecutive year, a draw on world stocks, by nearly two million tonnes in 1989/90, was expected. Global stocks in August 1990 were expected to be the lowest since 1980/81.

Cane accounts for two-thirds of world sugar production and beets for the rest. Cane production, located in tropical and semi-tropical countries, is generally less capital intensive, and production costs are lower. Beets are grown in the temperate climates, mostly the Northern Hemisphere. In many countries, sugar production and prices are protected by various government policies that make cost of production almost academic.

India, which grows cane, is the world's largest sugar producer, followed by the USSR, which grows beets. Brazil and Cuba, cane growers, are next, followed by the U.S. (cane and beet). If the EC, which raises beets, were viewed as a single nation, it would be a leading producer.

India--Production in 1989/90 was pegged near 11 million tonnes, up from 10.3 million in 1988/89. India has been a net importer of sugar at times. Population growth has triggered a boom in demand, especially for refined sugar. In 1989/90, India appeared to need at least 300,000 tonnes of imported sugar; this was a major prop for world prices.

USSR--Production was expected to rise to 9.5 million tonnes in 1989/90 from 8.9 million the previous season. Domestic use totals about 14 million tonnes. Imports were about 5.8 million tonnes in 1988/89, with Cuba supplying 4.3 million. Imports could decline slightly, if efforts to increase output and to curb consumption through rationing and other means are successful. Soviet sugar needs have a major influence on world prices.

China--Production (cane and beet) in 1989/90 was pegged at 5.5 million tonnes, up about 8 percent. Demand was expected to be at least 8.2 million tonnes. China is the second largest importer after the USSR, but a lack of foreign exchange often hampers its ability to import. Annual per capita consumption is estimated at 10 kilograms, versus 20 in Japan, over 30 in the U.S. and 45 in the USSR.

EC--France and Germany account for one-half of the EC-12's total production, put at 14.6 million tonnes in 1989/90. The EC is a major importer of raw sugar and the world's leading exporter of refined. Refined exports totaled about 5.4 million tonnes in 1989/90, or three-quarters of the world's refined trade and one-quarter of the total sugar trade. The premium of refined sugar over raw is often a reflection of the supply of EC sugar.

Thailand--During the 1980s, Thailand tripled its exports to an estimated 2.6 million tonnes in

1989/90 and 3 million in 1988/89. China, Japan, and South Korea take the bulk of Thailand's exports, and a record 600,000 tonnes was sent to the USSR in 1989. The government maintains relatively high domestic wholesale and retail sugar prices to encourage the industry and has tax incentives to spur exports. Production costs are well under 10 cents a pound, the sixth lowest in the world. Acreage planted to cane is increasing rapidly.

Brazil--In late 1989, Brazil privatized all sugar exports, eliminating the Sugar and Alcohol Institute's (IAA) monopoly on marketing. The IAA now sets export quotas only for excess production, after domestic sugar and fuel alcohol needs are met. Of the expected 1989/90 crop of 6.9 million tonnes (down from the previous year's 8.1 million), exports were forecast at 0.7 million tonnes (versus 1.5 million in 1988/89). Shipments were restricted at the end of 1989, propping world prices. An increasing amount of cane is converted into fuel alcohol (ethanol), now the major energy source for vehicles in Brazil.

The world ending stocks-to-consumption ratio for August 31, 1990 was put at 18 percent, slightly below the ratio in 1980/81 when world prices averaged 22.4 cents/lb. However, prices above 15 cents dampen demand in developing countries and stimulate more production.

U.S. beet and cane production in 1989 was forecast to decline slightly, particularly because of the Florida freeze. Cane sugar accounted for 3.13 million tons and beet sugar 3.49 million. Minnesota and North Dakota have the largest beet acreage. California is a major beet producer, but growers there are seeking other crops as beets require hefty investment in waste management and disease prevention. Florida accounts for about half the nation's cane production.

U.S. costs of production and processing declined in the 1980s, owing to technological improvements and higher-quality beets. Beet costs declined to about 18 cents/lb. by 1987/88, while cane costs fell to about 19 cents.

The loan rate for refined beet sugar is 21.37 cents/lb., about 3 cents over production costs; the raw cane sugar loan rate of 18 cents is under average production costs. Prices to domestic producers of cane and beets are supported through CCC nonrecourse loans to processors.

Futures and Options Markets

World (raw and white) and domestic raw sugar futures are traded on the New York Coffee, Sugar and Cocoa Exchange (CSCE). World raw and white sugar futures are listed on the London United Terminal Sugar market. White sugar futures are traded on the Paris International Sugar Market and the London Terminal. Options on the No. 11 contract are traded on the CSCE, and options are traded on the London Futures and Options Exchange.

SUGAR

United States Sugar (Cane & Beet) Supply and Utilization In Thousands of Short Tons (Raw Value)

Year	Supply								Utilization				Domestic Disappearance		
	Production		Total	Offshore Receipts		Total	Begin- ning Stocks	Total Supply	Total Use	Ex- ports	Net Changes in Invisible Stocks	Refin. Loss Adjust. ³	Imp. Blends & Mix- tures	Military & Civilian	
	Cane	Beet		For- eign	Terri- tories									Total	Total
1978	2,535	3,067	5,602	4,683	52	4,735	4,491	14,828	11,074	48	29	108	—	10,889	91.4
1979	2,727	3,066	5,793	5,027	47	5,074	3,754	14,621	10,921	73	-12	103	—	10,756	89.3
1980	2,684	3,052	5,736	4,495	178	4,673	3,701	14,110	11,028	689	72	78	—	10,189	83.6
1981	3,042	3,182	6,224	5,025	49	5,074	3,082	14,374	10,913	1,191	-102	53	—	9,769	79.35
1982	2,774	3,160	5,934	2,964	80	3,044	3,461	12,439	9,371	137	28	53	—	9,153	73.58
1983	3,092	2,588	5,680	3,080	67	3,147	3,068	11,895	9,325	300	141	72	—	8,812	70.15
1984	2,831	3,059	5,890	3,444	24	3,468	2,570	11,928	8,923	429	-18	58	8	8,428	66.47
1985	3,098	2,869	5,967	2,797	36	2,833	3,005	11,805	8,679	464	-69	122	15	7,997	62.47
1986	3,066	3,201	6,267	2,223	31	2,254	3,126	11,647	8,422	557	51	28	30	7,711	59.65
1987	3,410	3,899	7,309	1,546	12	1,558	3,225	12,092	8,897	567	145	18	30	8,037	61.58
1988	3,429	3,658	7,087	1,388	19	1,407	3,195	11,689	8,555	415	-60	12	30	8,085	61.14
1989 ¹	3,324	3,447	6,771	1,835	12	1,847	3,134	11,752	8,805	500	—	55	30	8,170	61.00
1990 ²	3,360	3,825	7,185	1,721	10	2,031	2,947	12,163	8,810	440	—	20	30		61.23

¹ Preliminary. ² Estimate. ³ Residual. ⁴ Forecast. Source: Agricultural Marketing Service, U.S.D.A.

T.645

Sugar Cane for Sugar & Seed and Production of Cane Sugar and Molasses in the United States

Year	Acreage Har- vested 1,000 Acres	Yield of Cane per Har. Acre Tons	Production			Sugar Yield per Acre Sh. Tons	Farm Price \$ per Ton	Farm Value		Sugar Production			Molasses Made	
			for Sugar	for Seed 1,000 Tons	Total			of Cane used for Sugar 1,000 Dollars	of Cane used for Sugar & Seed	Raw Value		Refined Basis 1,000 Tons	Edible 1,000 Gallons	Total
										Total 1,000 Tons	Per Ton of Cane Lbs.			
1978	744	35.0	24,821	1,176	25,997		19.40	483,905	507,069	2,612	210	2,441	2,750	161,810
1979	733	36.2	25,410	1,122	26,532		26.00	661,212	690,544	2,700	213	2,524	2,900	164,581
1980	733	36.8	25,582	1,381	26,963	3.99	38.50	984,559	1,035,990	2,728	213	2,550	1,900	163,341
1981	755	36.3	26,165	1,243	27,408	3.96	24.90	650,721	681,983	2,833	217	2,647	2,100	182,656
1982	742	40.1	28,449	1,321	29,770	4.37	26.50	755,038	789,896	3,063	215	2,863	1,550	177,041
1983	768	36.7	27,201	960	28,161	4.00	27.80	755,574	781,393	2,930	215	2,739	1,850	175,875
1984	747	36.6	26,008	1,332	27,340	4.29	28.20	734,026	769,934	3,007	231	2,811	2,070	175,573
1985	770	36.6	26,877	1,336	28,213	4.20	26.70	717,690	751,550	3,033	226	2,835	1,650	178,539
1986	796	38.1	28,936	1,375	30,311	4.37	27.30	788,678	824,724	3,281	227	3,066	1,700	185,970
1987 ¹	824	35.5	28,026	1,192	29,218	4.28				3,333	238	3,115	1,630	183,866
1988 ²	845	35.4	28,479	1,425	29,904	4.28				3,398				
1989 ²	863	35.2	28,943	1,425	30,368	4.07				3,300				

¹ Preliminary. ² Estimate. Source: Statistical Reporting Service, U.S.D.A.

T.646

U.S. Sugar Beets, Beet Sugar, Pulp, & Molasses Produced from Sugar Beets & Raw Sugar Spot Prices

Year of Harvest	Acreage		Yield Per Har. Acre Tons	Sugar Beets		Price ¹ Dollars	Farm Value \$1,000	Sugar Production		Raw Sugar Prices		Whole-sale List Price HFCS (42%) Nor. East
	Planted 1,000 Acres	Harv. 1,000 Acres		Production 1,000 Tons	Sugar Yield per Acre Sh. Tons			Refined Basis 1,000 Sh. Tons	Equivalent "Raw Value" ²	World ⁴ Intern. Agreem. Cents Per Lb.	-Cof., Sugar Exch.- N.Y. Duty Paid	
1978	1,305	1,269	20.3	25,788		25.20	649,846	3,074	3,289	7.81	13.93	12.32
1979	1,161	1,120	19.6	21,996		33.90	745,273	2,691	2,879	9.65	15.56	13.54
1980	1,231	1,190	19.7	23,502	2.65	47.20	1,108,974	2,943	3,149	28.66	30.11	24.27
1981	1,252	1,228	22.4	27,538	2.76	29.20	803,569	3,166	3,388	16.89	19.73	21.94
1982	1,054	1,027	20.3	20,894	2.67	35.40	740,342	2,558	2,737	8.40	19.92	16.82
1983	1,081	1,056	19.9	20,992	2.56	37.00	777,718	2,522	2,699	8.46	22.04	18.47
1984	1,124	1,096	20.2	22,134	2.65	33.90	750,162	2,715	2,905	5.21	21.74	20.41
1985	1,125	1,103	20.4	22,529	2.72	33.80	761,236	2,804	3,033	4.06	20.34	19.38
1986	1,232	1,191	21.1	25,162	2.87	35.90	902,199	3,193	3,281	6.04	20.95	19.30
1987	1,266	1,252	22.4	28,072	3.19			3,698	3,998	6.75	21.83	17.72
1988 ³	1,327	1,301	19.1	24,810	2.70				3,512	10.10	22.12	17.47
1989 ⁵	1,344	1,326	19.6	25,956	2.77				3,675	12.72	22.80	21.00

¹ Includes support payments, but excludes Sugar beet payments. ² Refined sugar multiplied by factor of 1.07. ³ Preliminary. ⁴ International Sugar Agreement, World Price. ⁵ Estimate. Source: Statistical Reporting Service, U.S.D.A.

T.647

Raw Sugar N.Y. Spot Price (C.I.F., Duty/Fee Paid, Contract #12 & #14) In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	21.51	21.90	22.00	22.03	22.01	22.06	21.89	21.72	21.70	21.56	21.40	21.10	21.74
1985	20.72	20.38	20.91	20.97	21.09	21.27	21.23	20.59	19.51	18.68	18.89	19.89	20.34
1986	20.67	21.01	20.95	20.85	20.88	20.99	20.97	20.87	20.87	21.08	21.17	21.12	20.95
1987	21.50	21.76	21.76	21.81	22.01	22.06	22.07	21.88	21.88	21.69	21.75	21.76	21.82
1988	21.83	22.11	22.16	22.16	22.13	22.54	23.43	21.90	21.77	21.74	21.70	21.99	22.12
1989	21.88	22.07	22.12	22.30	22.45	22.99	23.56	23.57	23.50	23.14	23.24		

Sources: Economic Research Service, U.S.D.A.; N.Y. Coffee & Sugar Exchange

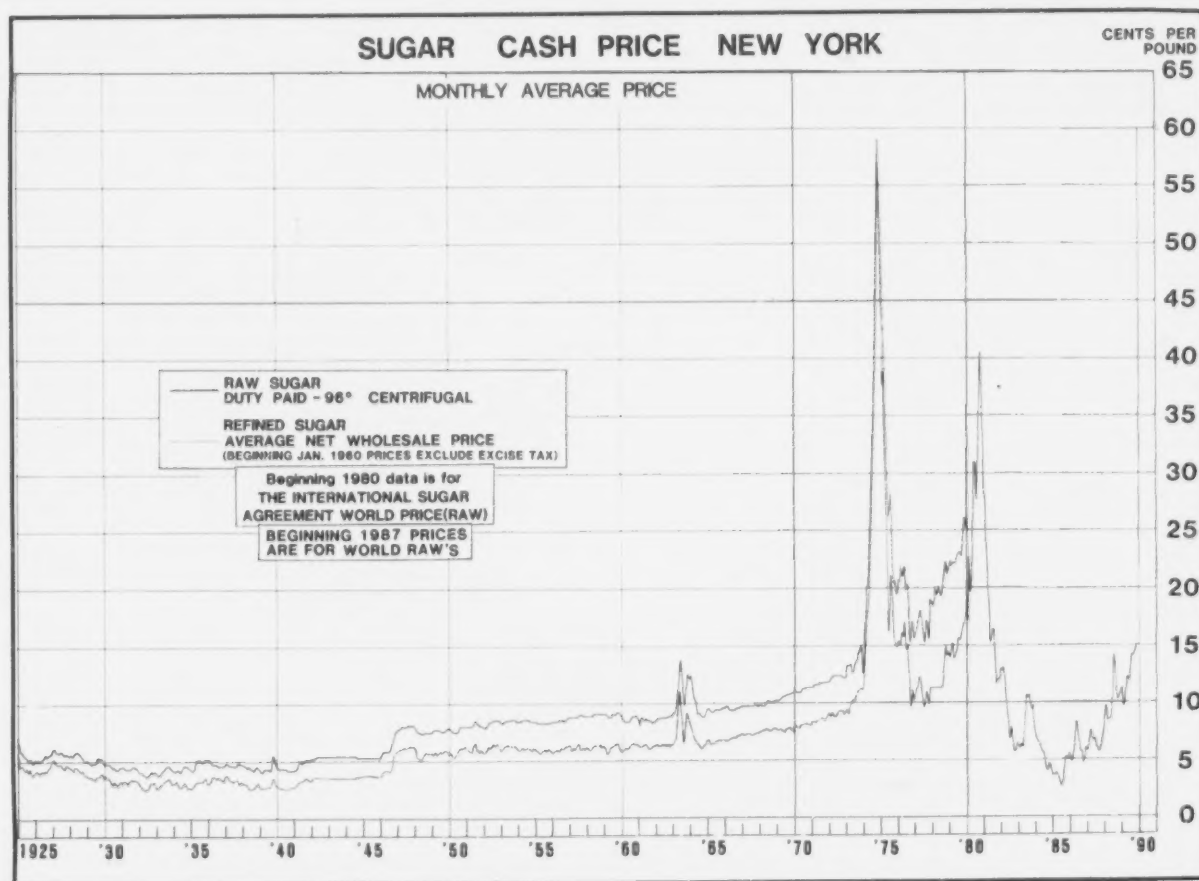
T.648

World Production of Sugar (Centrifugal Sugar—Raw Value) In Thousands of Metric Tons

Crop Year	Australia Cane	Brazil Cane	Main-land China Cane	Cuba Cane	South Africa Cane	India Cane	Indonesia Cane	Philippines Cane	Poland Beet	West Germany	Thailand	United States	USSR Beet	Mexico	France	World All
1982-3	3,535	9,300	4,132	7,200	2,256	9,508	1,731	2,521	2,009	3,591	2,305	5,359	7,392	3,078	4,833	101,342
1983-4	3,414	9,400	3,825	8,330	1,462	7,042	1,762	2,381	2,141	2,726	2,305	5,275	8,700	3,242	4,153	96,542
1984-5	3,548	9,300	4,627	8,100	2,514	7,071	1,709	1,767	1,878	3,146	2,533	5,289	8,587	3,436	4,301	100,183
1985-6	3,404	8,100	5,535	7,200	2,247	7,983	1,728	1,561	1,811	3,430	2,586	5,473	8,260	3,928	4,297	98,938
1986-7	3,457	8,650	5,774	7,220	2,200	9,474	2,024	1,350	1,891	3,469	2,639	6,246	8,700	3,970	3,707	103,271
1987-8	3,528	8,457	4,706	7,400	2,235	10,000	2,127	1,400	1,823	2,968	2,704	6,483	9,560	3,806	3,966	103,360
1988-9 ²	3,680	8,580	5,100	8,100	2,470	10,150	1,889	1,600	1,825	3,015	4,024	6,089	8,950	3,678	4,372	105,462
1989-90 ¹	3,800	7,500	5,300	8,000	2,400	10,420	2,000	1,750	1,820	3,200	4,000	6,418	9,000	3,500	4,100	105,697

¹ Estimated. ² Preliminary. Source: Foreign Agricultural Service, U.S.D.A.

T.644



SUGAR

United States Production & Imports of Edible Syrups In Thousands of Gallons

Year	Production ²						Imports			
	Syrups			Edible Molasses			Edib. Molas. & Cane Syrup			
	Corn	Maple	Refiners'		Honey	Total	Maple Syrup		Honey	Total
1981	1,073,933	1,410	1,446	2,100	15,703	1,094,592	1,046	2,040	6,530	9,616
1982	1,212,759	1,292	1,003	1,550	18,666	1,235,270	1,154	2,566	7,767	11,487
1983	1,334,557	1,150	1,000	1,850	17,314	1,355,871	1,288	2,336	9,277	12,900
1984	1,501,377	1,366	950	2,070	13,936	1,519,699	1,248	3,495	10,869	15,612
1985	1,721,980	1,325	1,100	1,650	12,669	1,738,724	1,323	4,164	11,676	17,163
1986 ¹	1,726,348	937	N.A.	1,700	16,925	1,745,910	1,672	8,095	10,000	19,767
1987 ³	1,780,607	791	N.A.	1,630	19,157	1,802,185	1,493	6,905	4,921	13,319
1988 ³							1,246			

¹ Preliminary. ² Production of cane syrup, sorghum syrup, & edible molasses is of the fall of the preceding year. ³ Estimate. Source: Agricultural Marketing Service, U.S.D.A.

T.652

U.S. Exports & Domestic Consumption of Edible Syrups, Corn Sugar & Sugar In Thousands of Gallons

Year	Exports			Indicated Domestic Consumption					Per Capita Consumption in Pounds							Total All Sweeteners
	Corn Syrup	Honey	Total	Corn	Maple	Cane & Refin. Edib. Mol.	Honey	Total	Corn Sweeteners ²	Caloric Sweeteners	Aspartame	Saccharin	U.S. Grown	Cane	Total	
1981	2,916	777	3,693	1,071,017	2,456	5,586	21,456	1,100,515	43.5	124.9	.2	8.0	47.1	53.8	79.4	133.3
1982	791	721	1,512	1,211,968	2,446	5,119	25,712	1,245,245	48.2	127.8	1.0	8.4	48.8	48.3	73.6	132.6
1983	1,223	630	1,853	1,333,334	2,437	5,186	25,961	1,366,918	52.6	130.4	3.5	9.5	48.0	47.1	71.0	137.6
1984	656	627	1,283	1,500,721	2,614	6,515	24,178	1,534,028	58.8	129.7	5.8	10.0	42.7	45.0	67.6	142.5
1985	534	549	1,083	1,721,446	2,648	6,914	23,796	1,754,804	65.6	132.8	12.0	6.0	44.0	38.6	63.4	142.4
1986	638	778	1,416	1,725,710	2,609	9,795	26,147	1,764,261	67.5	133.5	13.0	5.5	46.4	35.6	60.8	148.9
1987 ¹	938	1,045	1,983	1,779,669	2,284	8,535	23,033	1,813,521	68.6	132.4	13.5	5.5	53.9	33.6	62.4	147.2
1988 ³									69.6	132.7	14.0	6.0	54.0	34.8	61.7	152.4
1989 ³									69.3	132.1					61.4	

¹ Preliminary. ² Corn syrup & dextrose. ³ Estimate. Source: Agricultural Marketing Service, U.S.D.A.

T.653

Sugar Deliveries and Stocks in the United States In Thousands of Short Tons, Raw Value

Year	Deliveries by Primary Distributors					Sales of Refined Sugar For Export	Total Domestic Consumption ²	Stocks (January 1)					Total
	Cane ¹ Sugar Re- fineries	Beet Sugar Fac- tories	Importers of Direct Consumption Sugar	Cane Sugar Mills ¹	Total			Cane Sugar Re- fineries	Beet Sugar Fac- tories	Comm. Credit Corp.	Re- finers' Raws	Main- land Cane Mills	
1981	6,618	3,151	17	24	9,770	1,191	9,770	315	1,286	20	691	658	2,970
1982	6,127	3,026	46	24	9,153	137	9,153	272	1,277	20	844	931	3,344
1983	5,910	2,902			8,812	300	8,812	262	1,417	0	517	701	2,897
1984	5,722	2,732			8,454	429	8,428	225	1,103	0	528	592	2,448
1985	4,973	3,062			8,035	464	7,997	214	1,430	0	473	762	2,879
1986	4,667	3,120			7,786	557	7,711	197	1,189	220	523	834	2,964
1987	4,512	3,655			8,167	567	8,037	211	1,304	177	516	830	3,038
1988 ³	4,356	3,832			8,188	415	8,058	184	1,546	0	401	996	3,128
1989 ⁴	4,750	3,500			8,250	500	8,120	187	1,372	0	487	1,008	3,053

¹ Sugar for direct consumption only. ² Includes deliveries for U.S. military forces at home and abroad. ³ Preliminary ⁴ Estimate. Source: Department of Agriculture

T.654

Sugar, Refined—Deliveries by Type of Product of Buyer in the U.S. In Thousands of Short Tons

Year	Bakery & Cereal Pkts.	Beverages	Confectionery ³	Institutions	Dairy Products	Processed Foods	Other Food Uses	Retail Grocers ⁴	Wholesale Grocers ⁵	Other Uses ⁶	Total Deliveries	In Consumer Size Pkgs.	To Industrial Users
1981	1,306	1,852	983	259	459	484	581	1,161	2,001	126	9,212	2,425	737
1982	1,296	1,583	940	177	404	450	526	1,086	1,951	106	8,519	2,310	727
1983	1,387	1,248	1,087	195	385	454	431	1,168	1,713	131	8,199	2,314	567
1984	1,404	908	1,115	209	408	433	416	1,100	1,744	127	7,864	2,274	570
1985	1,494	340	1,059	204	456	428	441	1,045	1,874	131	7,472	2,185	734
1986	1,432	266	1,051	142	447	387	443	1,066	1,867	138	7,239	2,298	635
1987	1,513	212	1,146	163	449	398	534	996	2,040	149	7,600	2,144	892
1988 ¹	1,541	237	1,107	175	411	354	529	941	2,200	121	7,616	2,084	1,057
1989 ⁶	1,500	230	1,170	180	430	350	550	1,000	2,000	140	7,800	2,300	900

¹ Preliminary. ² Used largely for pharmaceuticals & some tobacco. ³ And related products. ⁴ Chain stores, supermarkets. ⁵ Jobbers, sugar dealers. ⁶ Forecast. Source: Stat. Rep. Serv., U.S.D.A.

T.649

Centrifugal Sugar (Raw Value) Imported into Selected Countries In Thousands of Metric Tons

Crop Year	Algeria	Canada	China	France	Iran	Israel	Japan	Korea Rep.	Malaysia	Morocco	Nigeria	Peru	United Kingdom	United States	USSR	West Germany	World Total ²
1979	513	1,010	985	103	746	256	2,605		418	279	530		1,424	4,437	4,080	146	24,827
1980	569	859	946	69	785	119	2,265		510	332	709		1,404	3,802	4,981	150	26,480
1981-2	535	929	1,060	376	755	180	2,209		432	350	600		1,307	3,196	6,883	186	28,935
1982-3	636	912	2,563	357	472	302	2,239		433	205	941		1,050	2,393	7,363	183	29,085
1983-4	550	1,001	1,777	363	623	261	1,868		560	224	863	263	1,500	2,667	5,998	180	27,530
1984-5	595	1,054	1,348	360	607	319	1,903	838	580	319	439	130	1,300	3,021	5,704	175	27,937
1985-6	554	1,145	1,216	365	650	233	1,857	970	663	238	600	256	1,484	1,965	5,030	180	28,294
1986-7	680	1,119	1,507	367	750	229	1,695	973	661	297	578	341	1,235	1,503	5,057	161	27,324
1987-8	700	928	3,199	361	800		1,848	1,000	744	295	505	222	1,323	1,140	4,515	194	27,438
1988-9 ¹	650	958	2,500	363	950		1,850	1,000	750	270	430	113	1,326	1,753	5,325	185	29,081
1989-90 ³	700	1,021	3,000	300	964		1,885	1,035	810	260	420	150	1,340	1,522	5,175	170	29,723

¹ Preliminary. ² Excludes U.S. trade with Territories. ³ Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.655

Centrifugal Sugar (Raw Value) Exported from Selected Countries In Thousands of Metric Tons

Crop Year	Australia	Brazil	Czechoslovakia	Cuba	Dom. Republic	France	Thailand	Mauritius	Mexico	Peru	Philippines	South Africa	Taiwan	Un. Kingdom	USSR	World Total ²
1979	2,002	1,860	242	7,269	986	2,347	1,190	641		181	1,150	884	387	76	244	26,373
1980	2,410	2,615	186	6,191	794	2,750	479	655		53	1,745	785	403	100	164	27,290
1981-2	2,620	2,984	160	7,734	816	3,226	2,419	560		63	1,314	851	380	122	268	33,044
1982-3	2,504	2,788	215	7,734	850	3,066	2,045	633		92	1,301	884	380	390	267	30,642
1983-4	2,425	2,801	115	6,792	956	3,300	1,411	644	833	120	999	569	186	240	148	28,842
1984-5	2,591	3,040	234	7,017	885	3,000	1,444	562	273	130	1,200	687	130	175	204	28,434
1985-6	2,858	2,690	200	7,000	480	2,580	2,060	622	192	55	296	1,207	177	275	176	29,365
1986-7	2,658	2,086	240	6,630	587	1,917	1,960	691	505	33	197	875	25	366	173	28,123
1987-8	2,797	2,131	200	6,500	531	2,535	1,891	687	967	39	129	925	14	340	175	27,601
1988-9 ¹	2,860	1,371	200	7,300	580	2,829	2,950	642	410	50	210	1,000	20	373	175	28,632
1989-90 ³	2,930	1,300	210	7,300	606	2,652	3,000	585	100	50	300	900	14	300	175	28,293

¹ Preliminary. ² Excludes U.S. trade with Territories. ³ Estimate. Source: Agricultural Marketing Service, U.S.D.A.

T.656

World Raw Sugar Price² In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	17.16	22.69	19.64	21.24	30.94	30.80	27.70	31.77	34.89	40.53	37.81	28.79	28.66
1981	27.78	24.09	21.81	17.83	15.06	16.38	16.34	14.76	11.65	12.04	11.97	12.98	16.89
1982	12.90	13.07	11.26	9.58	8.11	6.84	7.80	6.77	5.76	5.93	6.52	6.31	8.40
1983	6.03	6.43	6.20	6.71	9.24	10.74	10.53	10.56	9.43	9.69	8.33	7.67	8.46
1984	6.97	6.64	6.42	5.99	5.61	5.53	4.54	4.05	4.16	4.65	4.38	3.55	5.21
1985 ³	3.59	3.66	3.78	3.37	2.77	2.74	3.15	4.35	5.14	5.01	5.53	5.37	4.04
1986	4.87	5.55	7.07	8.36	7.64	6.36	5.58	5.50	4.67	5.42	5.93	5.66	6.05
1987	6.47	7.32	7.51	6.64	6.71	6.40	6.03	5.57	5.79	6.60	7.28	8.25	6.71
1988	9.64	8.40	8.48	8.49	8.85	10.52	14.04	11.09	10.18	10.29	10.82	11.28	10.18
1989 ¹	9.69	10.49	11.54	12.14	11.93	12.63	14.01	13.96	14.13	14.42	15.02		

¹ Preliminary. ² Contract no. 11-F.O.B. Stowed Caribbean port (bulk). ³ Prior to 1985 prices are for ISA world price. Source: Sugar Division, Commodity Stabilization Service

T.657

Average Refined Beet Sugar¹ (Wholesale)—Midwest Market In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	24.00	24.00	25.60	26.00	26.50	26.50	26.88	27.00	27.00	26.69	26.50	26.50	26.10
1984	26.85	26.50	26.50	26.50	26.50	26.25	25.75	25.31	25.00	24.60	24.12	24.00	25.66
1985	23.50	23.42	23.00	23.12	23.55	23.12	23.25	23.50	23.44	23.13	22.50	22.62	23.18
1986	23.45	23.31	23.25	23.50	23.30	23.00	23.38	24.20	24.19	23.50	23.00	23.00	23.42
1987	23.30	23.50	23.50	23.50	24.15	24.44	24.50	24.50	24.00	22.85	22.50	22.50	23.60
1988	23.25	22.75	22.75	23.45	24.19	25.25	27.10	27.75	27.50	27.25	26.75	27.80	25.49
1989	28.75	29.00	29.50	29.50	29.50	29.50	29.38	29.25	29.06	28.20			

¹ These are f.o.b. basis prices in bulk, not delivered prices. To obtain delivered prices, add freight "prepayments" & deduct discounts & allowances. Source: Economics & Statistics Service, U.S.D.A.

T.658

SUGAR

World Stocks of Centrifugal Sugar at Beginning of Marketing Year In Thous. Tonnes (Raw Value)

Sugar-Making Season	Australia	Brazil	China	Cuba	France	West Germany	India	Iran	Italy	Japan	Mexico	Netherlands	Philippines	Switzerland	United Kingdom	U.S. & Insular	World Total
1985-6	603	1,386	1,922	1,600	1,016	566	1,803	151	350	216	1,394	149	229	229	124	1,596	28,203
1986-7	348	496	2,302	1,100	1,073	692	2,166	221	256	227	1,620	270	283	246	420	1,499	26,850
1987-8	310	601	2,124	800	1,089	707	2,960	221	439	192	1,485	233	209	237	243	1,358	26,544
1988-9 ¹	318	701	2,324	900	818	640	2,703	121	374	180	1,165	239	113	202	183	1,360	25,668

¹ Preliminary. Source: Foreign Agricultural Service, U.S.D.A.

T.650

Month-End Open Interest of World Sugar (#11) Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	103,041	87,843	68,667	61,126	69,666	68,554	68,996	70,993	71,316	79,313	76,754	64,740
1981	61,522	57,087	59,025	54,898	62,330	61,022	66,730	64,604	52,740	60,761	66,399	72,326
1982	76,623	60,990	65,457	57,719	61,332	51,267	54,706	51,737	42,363	50,682	61,916	64,406
1983	78,889	76,429	83,851	88,011	99,100	94,091	94,216	94,245	80,360	81,261	83,302	84,059
1984	81,806	73,634	92,503	84,925	92,769	89,393	90,897	98,425	76,056	85,413	86,508	80,550
1985	91,973	81,892	84,390	78,336	94,570	81,969	91,489	92,291	85,946	84,583	97,145	93,355
1986	96,382	85,112	118,580	111,625	95,088	86,064	85,427	91,764	82,851	84,290	84,340	92,574
1987	105,733	95,869	90,775	95,034	92,870	93,889	98,898	102,111	96,033	95,197	115,200	135,754
1988	155,823	132,682	137,240	123,493	150,872	162,044	140,856	136,770	121,312	117,924	137,049	143,241
1989	120,329	135,638	158,892	140,945	149,979	170,195	186,970	170,933	158,020	151,998	170,297	163,475

Source: Coffee, Sugar & Cocoa Exch., Inc., N.Y.

T.660

Volume of Trading of World Sugar (#11) Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	381,805	354,441	338,118	245,233	309,417	277,846	271,884	279,149	317,170	295,673	250,627	255,379	3,576,702
1981	233,217	237,286	212,519	240,420	212,708	241,736	192,142	203,404	247,160	138,529	137,768	183,438	2,470,327
1982	166,913	209,386	199,263	217,689	138,377	177,657	176,641	144,980	151,639	140,262	160,656	154,657	2,037,020
1983	207,678	249,392	198,034	261,939	396,435	396,267	272,150	329,129	283,827	214,897	231,757	160,436	3,201,941
1984	192,451	205,499	252,489	227,150	175,268	213,491	163,955	228,279	263,419	234,008	154,735	124,579	2,449,549
1985	273,316	265,967	215,540	210,046	193,527	237,904	263,842	338,816	323,387	224,856	216,340	249,398	3,012,929
1986	308,044	268,053	382,053	519,027	343,746	289,900	281,124	235,555	328,830	258,744	173,612	195,126	3,583,814
1987	387,630	381,393	323,047	381,972	278,857	313,001	248,133	235,263	367,074	331,052	268,226	337,851	3,853,499
1988	603,565	605,773	348,510	391,971	474,693	705,498	807,381	442,101	450,116	276,010	332,463	381,040	5,819,121
1989	499,119	520,018	575,486	600,852	557,386	660,521	624,969	517,295	526,834	328,469	456,485	375,927	6,243,361

Source: Coffee, Sugar & Cocoa Exch., Inc., N.Y.

T.661

United States Deliveries¹ of All Sugar by Primary Distributors In Thousands of Short Tons, Raw Value

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	838	774	964	811	893	947	923	1,103	860	924	879	840	10,756
1980	794	848	866	772	943	882	910	904	909	825	717	818	10,189
1981	—	2,208	—	—	2,532	—	—	2,725	—	—	2,305	—	9,770
1982	—	2,083	—	—	2,418	—	—	2,400	—	—	2,252	—	9,153
1983	—	2,078	—	—	2,195	—	—	2,349	—	—	2,190	—	8,812
1984	—	2,029	—	—	2,121	—	—	2,238	—	—	2,066	—	8,454
1985	—	1,909	—	—	1,972	—	—	2,150	—	—	2,004	—	8,035
1986	—	1,819	—	—	1,907	—	—	2,069	—	—	1,991	—	7,786
1987	—	1,908	—	—	2,001	—	—	2,146	—	—	2,112	—	8,167
1988 ²	—	1,951	—	—	1,983	—	—	2,147	—	—	2,107	—	8,188
1989 ²	—	1,902	—	—	2,056	—	—	2,161	—	—	—	—	—

¹ Includes for domestic consumption and for export. ² Preliminary. Source: Department of Agriculture

T.659

United States Foreign Trade of Sugar (Raw & Refined) In Thousands of Short Tons

Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1988 ¹	Exports	10.4	23.1	13.0	22.4	9.0	41.6	36.0	28.3	23.0	38.2	16.8	615.6	877.4
	Imports	71	94	71	76	96	62	112	144	99	164	90	134	1,213
1989 ¹	Exports	24.2	36.2	27.2	27.3	22.8	33.8	18.4	45.6	50.4	51.7	—	—	—
	Imports	104	112	152	84	126	149	181	226	106	97	—	—	—

¹ Preliminary. Source: Bureau of the Census

High, Low & Closing Prices of March World Sugar (#11) At New York In Cents per Pound

Year of Delivery		Year Prior to Delivery												Delivery Year		Life of Delivery Range	
		Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.		Feb.
1985	High	11.50	10.25	9.60	9.44	9.12	8.39	7.70	6.74	6.08	6.17	6.27	6.05	5.35	4.84	4.45	13.60
	Low	10.06	9.38	8.63	8.74	8.28	7.19	6.61	5.62	4.94	5.05	5.33	5.08	4.02	4.01	3.74	3.74
	Close	10.16	9.56	8.75	9.04	8.40	7.45	6.73	5.72	5.80	5.44	5.83	5.28	4.16	4.32	4.10	—
1986	High	7.40	7.12	6.43	6.05	5.21	4.69	4.33	5.45	5.59	6.20	6.15	6.39	6.56	6.13	6.52	8.27
	Low	6.02	6.13	5.70	5.05	4.58	3.98	3.34	3.59	4.41	5.17	5.25	5.73	5.38	4.97	5.60	3.34
	Close	6.22	6.31	5.83	5.06	4.17	4.28	3.63	5.22	5.13	5.65	6.14	6.13	5.62	5.92	6.28	—
1987	High	7.68	7.60	7.50	9.48	9.67	9.50	8.30	7.54	7.62	6.53	7.10	7.30	7.07	8.32	8.30	9.67
	Low	6.70	6.45	6.95	7.33	8.31	7.65	6.70	6.17	6.15	5.83	5.75	6.45	5.99	5.77	7.09	5.75
	Close	6.96	7.36	7.37	9.43	9.43	8.00	7.51	7.20	6.16	6.28	6.90	6.60	6.16	7.74	8.24	—
1988	High	8.01	8.89	8.70	8.95	8.05	8.03	7.73	7.58	7.02	7.35	7.73	8.12	9.55	10.83	9.74	10.83
	Low	7.18	7.04	7.97	7.40	7.22	7.40	7.15	6.53	6.39	6.43	6.79	7.31	7.86	9.06	7.56	6.39
	Close	7.30	8.41	8.65	7.45	7.75	7.52	7.39	6.71	6.56	6.96	7.59	8.01	9.49	9.64	7.99	—
1989	High	9.65	10.32	9.42	9.02	9.07	9.68	12.28	14.39	11.23	10.72	10.61	11.34	12.00	11.03	11.70	14.39
	Low	8.25	9.30	7.66	8.12	8.38	8.48	9.50	9.90	9.61	8.69	9.10	9.86	10.72	9.26	9.87	7.94
	Close	9.61	9.56	8.05	8.83	8.84	9.36	11.90	10.67	10.27	9.64	10.59	11.07	11.15	10.49	10.75	—
1990	High	10.62	10.10	11.29	11.83	12.02	12.10	13.58	13.85	13.61	14.33	14.42	15.38	14.32			
	Low	9.90	9.07	9.70	10.74	11.22	10.62	10.73	11.94	12.18	12.37	13.58	13.96	12.78			
	Close	10.16	9.96	11.12	11.52	11.24	10.63	13.56	13.58	12.74	14.16	13.97	14.15	13.16			
1991	High	13.03															
	Low	12.06															
	Close	12.32															

Source: Coffee, Sugar & Cocoa Exchange, Inc., N.Y.

T.662



Sulfur

About 90 percent of the estimated 12.8 million tonnes of sulfur consumed in the U.S. in 1989 was made into sulfuric acid prior to its end use. While most industrial products require sulfur in one form or another at some point during manufacturing, agricultural chemicals (primarily fertilizers) accounted for 70 percent of U.S. sulfur demand in 1989. Other leading uses included: chemicals, 12 percent; petroleum refining, 8 percent; and metal mining, 2 percent.

World sulfur demand declined modestly in 1989, while trade fell by more than 2 million tonnes. India cut phosphoric acid imports from North Africa, and Morocco and Tunisia in turn reduced sulfur imports from Canada. To maintain sales,

Canadian exporters cut prices by \$20 to \$30 a tonne during second-half 1989. Because Canada is the leading exporter, the cuts took market share from other nations. U.S. exports fell from 1.223 million in 1988 to 850,000 tonnes, which was the lowest since 1931.

Still, U.S. mine production of sulfur rose by nearly 25 percent to 3.9 million tonnes, and by-product recovery from petroleum and natural gas refining rose by 3 percent to 6.65 million tonnes.

Total 1989 world sulfur production was put at 58.5 million tonnes, little changed from 1988. For 1990, U.S. production was expected to fall to 11.5 million tonnes, and apparent consumption was likely to be 12 million tonnes.

World Production of Sulfur [All Forms] In Thousands of Metric Tons

Year	Canada	Chile	China	France	West Germany	Israel	Italy	Japan	Mexico	Poland	Spain	Turkey	USSR	United States	Yugoslavia	World Total
1983	6,577	131	2,850	1,910	1,322	10	490	2,613	1,702	5,180	1,204	112	9,150	9,290	481	49,770
1984	6,596	86	2,650	1,862	1,481	10	400	2,592	1,985	5,210	1,231	119	9,200	10,652	464	51,859
1985	6,684	109	2,900	1,723	1,569	10	481	2,498	2,180	5,096	1,355	124	9,274	11,609	496	54,331
1986	6,543	98	3,100	1,306	1,573	15	494	2,371	2,220	5,120	1,310	121	9,275	11,087	522	54,074
1987 ¹	6,668	97	3,100	1,252	1,625	20	490	2,221	2,399	5,220	1,120	120	9,550	10,539	501	54,221
1988 ²	6,907			1,142	1,795		695	2,447	2,393	5,090	1,340		10,700	10,746		58,395
1989 ²	6,990			1,100	1,900		700	2,400	2,300	5,100	1,250		9,800	11,725		58,500

¹ Preliminary. ² Estimate. ³ Content of ore. Source: Bureau of Mines

T.663

Salient Statistics of Sulfur in the United States In Thousands of Metric Tons of Sulfur Content

Year	Native Sulfur ²			Production of					Imports Pyrites & Sulfur	Producers' Stocks Dec. 31 ⁴	Exports (Elemental)	Apparent Consumption (All Forms)	Sales Value of Shipments—For Mine/Plant		
	Frasch-Process Total	Louisiana	Texas	Recovered Elemental Brimstone	Pyrites (Incl. Coal Brimstone)	By-product Sulfuric Acid ³	Other Sulf. Acid Compounds	Production (All Forms)					Frasch	Recovered	Average
1982	4,210	1,312	2,898	4,404	265	828	80	9,787	1,905	4,218	961	10,059	120.79	97.89	108.27
1983	3,202	1,286	1,915	4,955	N.A.	831	302	9,290	1,695	3,223	992	10,988	100.76	76.22	87.24
1984	4,193	1,937	2,257	5,214	N.A.	962	283	10,652	2,557	2,419	1,334	12,679	109.20	80.02	94.31
1985	5,011	2,071	2,940	5,313	N.A.	957	328	11,609	2,104	2,799	1,365	11,968	122.62	92.11	106.46
1986	4,043	1,579	2,463	5,816	N.A.	919	309	11,087	1,347	2,748	1,895	10,586	123.79	92.06	105.22
1987 ¹	3,202	1,369	1,833	6,161	N.A.	1,003	173	10,539	1,599	2,316	1,242	11,323	107.15	79.63	89.78
1988 ⁵	3,174			6,444				10,746	1,996	1,112	1,223	12,712	105	78	85.95
1989 ⁵	3,888			6,518				11,725	2,201	1,313	852	12,725			88.00

¹ Preliminary. ² Or sulfur ore. ³ Basis 100%, produced at Cu, Zn, & Pb plants. ⁴ Frasch & recovered. ⁵ Estimates. Source: Bureau of Mines

T.664

Sulfur Consumption & Foreign Trade of the United States In Thousands of Metric Tons

Year	Net Import Reliance as a % of Apparent Consumption	Apparent Consumption of Sulfur in All Forms ³						Imports of Re-covered Sulfur	Ship-ments of Frasch Sulfur	Imports of Frasch Sulfur	Foreign Trade			
		Native Sulfur (Frasch)	Recover-ed Sulfur Shipm.	Total Pyrites Ship-ments	Smelter Acid Prod. Shipm.	Other Forms ² Shipm.	Total				Exports		Imports	
											Quantity	Value Ths. \$	Quantity	Value Ths. \$
1982	4	3,557	4,344	265	828	80	10,059	1,215	3,598	690	961	122,143	1,905	164,885
1983	15	4,114	5,041	N.A.	831	302	10,988	1,091	4,111	604	992	109,298	1,695	129,110
1984	16	4,812	5,210	N.A.	962	283	12,679	1,835	5,001	722	1,334	156,067	2,557	200,189
1985	3	4,416	5,266	N.A.	957	328	11,968	1,380	4,678	724	1,365	189,248	2,104	199,240
1986	—	3,584	5,798	N.A.	919	309	10,586	621	4,108	726	1,895	251,664	1,347	142,220
1987 ¹	7	3,938	6,180	N.A.	1,003	173	11,323	806	3,610	793	1,242	139,431	1,599	152,096
1988 ⁴	16						12,712		4,340		1,223	131,863		
1989 ⁴	8						12,725		3,760		852			

¹ Preliminary. ² Includes hydrogen sulfide, liquid sulfur dioxide. ³ Crude sulfur equivalent. ⁴ Estimate. Source: Bureau of Mines

T.665

Sunflowerseed and Oil

World sunflowerseed production in 1989/90 was projected by USDA at 21.7 million tonnes, almost 7 percent more than a year earlier. Sunseed comprises 10 percent of worldwide oilseeds output.

The crop in the USSR, the largest sunseed producer, was projected at 6.5 million tonnes, up 6 percent from the previous season. The European Community (EC) was forecast to produce 3.2 million tonnes, down from 3.9 million. Argentina's crop rose by an estimated 38 percent to 4 million tonnes, as a dry planting season caused producers to switch out of corn and sorghum and into drought-resistant sunflowers. Argentina's sunflower acreage increased by over 30 percent.

The U.S. sunseed crop was put at 763,000 tonnes, below 813,000 the year before. Acreage fell by about 9 percent, with most of the decline in North Dakota and Kansas, as part of the acreage was replaced by spring wheat. Yields were up slightly.

World sunseed exports in 1989/90 were projected to decline to 1.31 million tonnes from 1.8 million the previous season. U.S. exports of sunseed have not shown improvement due to keen competition, especially from Argentina. Mexico is a major market for U.S. sunseed. The EC, an important producer of sunseed, is also a net importer.

The 1989/90 world sunseed crush was forecast at 19.2 million tonnes, 7 percent more than the previous season. The USSR was the largest processor

with a crush of about 4.7 million tonnes. Argentina was expected to process 3.6 million tonnes or 90 percent of its crop. Argentina taxes oilseeds more than products, encouraging exports of sunoil and sunmeal.

World sunseed meal production was put at 8.7 million tonnes, 6 percent more than a year earlier. The major producers are the USSR, the EC, and Argentina. Argentina was projected to produce 1.6 million tonnes of sunseed meal in 1989/90 and to ship 90 percent of that. Importers of sunseed meal include the Netherlands, West Germany, and Britain. World sunseed meal use was projected at 8.4 million tonnes, 4 percent more than the previous season. Meal ending stocks were put at 185,000 tonnes, up 10 percent.

World sunoil production in 1989/90 was estimated at 7.7 million tonnes, up 8 percent. Sunoil is the third largest oil produced, following soyoil and palm oil. Higher levels of unsaturated fats in sunoil makes it popular in cooking. Major producers are the USSR, Argentina, and the EC.

World sunoil exports were forecast at 2.3 million tonnes, or 13 percent more than a year earlier. Argentine sunoil exports were projected at 1.05 million tonnes, up 40 percent. The U.S. subsidizes sunoil exports to countries including Algeria, Turkey, and India.

World ending stocks of sunseed oil in 1989/90 were forecast at 441,000 tonnes, down 15 percent.

World Production of Sunflowerseed In Thousands of Metric Tons

Crop Year	Argentina	Australia	Bulgaria	Burma	China	France	Hungary	India	Romania	South Africa	Spain	Turkey	United States	USSR	Yugoslavia	World Total
1986-7	2,500	145	489	253	1,544	1,902	857	436	1,004	404	920	940	1,210	5,258	449	19,254
1987-8	2,800	219	400	221	1,241	2,508	787	600	650	540	1,006	895	1,183	6,075	486	20,646
1988-9 ¹	2,900	162	400	238	1,340	2,330	705	550	580	400	1,123	1,100	810	6,160	410	20,344
1989-90 ²	4,000	155	400	250	1,350	1,840	735	600	780	400	1,000	1,200	760	6,500	465	21,720

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.668

Sunflowerseed Statistics in the United States

Crop Year Begin Sept.	Acres Harvested In Ths.	Yield per Harv. Acre Pounds	Farm Price \$ Metric Ton	Value of Production Mil. \$	Supply			Disappearance				
					Production	Imports	Stocks Sept. 1	Total	Crushings	Exports	Non-Oil Usage	Seed
1986-7	1,955	1,369	153	185.1	1,214	8	212	1,434	635	324	—	222
1987-8	1,775	1,469	184	217.7	1,183	10	253	1,446	900	275	—	74
1988-9 ²	1,792	933	266	216.3	813	13	197	1,023	590	100	—	252
1989-90 ²	1,683	954	215	164.0	763	10	81	854	525	85	—	159

¹ Preliminary. ² Estimate. Source: Economic Research Service, U.S.D.A.

T.666

Sunflowerseed Statistics in the United States In Metric Tons

Crop Year Begin Oct.	Sunflowerseed Oil							Sunflowerseed Meal						
	Supply			Disappearance			Price \$ per Metric Ton (Crude Mpls.)	Supply			Disappearance			Price \$ per Metric Ton 28% Protein
	Stocks Oct. 1	Production	Total	Ex- ports	Domestic	Total		Stocks Oct. 1	Production	Total	Ex- ports	Domestic	Total	
1986-7	25	266	291	156	84	240	353	5	305	310	36	269	305	84
1987-8	51	377	430	319	40	358	520	5	426	431	46	381	427	109
1988-9 ¹	71	244	315	195	80	275	500	4	296	310	10	295	305	135
1989-90 ²	40	210	250	165	60	225	470	5	265	280	35	240	275	85

¹ Preliminary. ² Estimate. Source: Economic Research Service, U.S.D.A.

T.667

Tall Oil

Tall Oil—Supply & Distribution in the U.S. In Millions of Pounds

Beginning Oct. 1	Supply (Crude)			Disposition										Total Nonfood Products
				Non Food Products										
	Pro- duction	Stocks Oct. 1	Total Supply	Ex- ports	To U.S. Territ.	Soap	Paint & Varnish	Lino- leum & Oilcloth	Resins & Plastics	Other Drying Oils	Lubri- cants & Similar Oils	Fatty Acids	Other	
1981-2	1,190	137	1,327			3	16		17		4	1,096	48	1,185
1982-3	1,557	151	1,708			4	30		25		4	1,042	64	1,151
1983-4	1,293	217	1,510				33		—			1,096		1,228
1984-5	1,321	113	1,434				20		16			994		1,087
1985-6	1,415	126	1,541			13	17		16		12	1,055		1,143
1986-7 ²	1,501	178	1,679			12	15		16		13	1,153		1,227
1987-8 ²	1,483	160	1,643			17	23		21		10	1,181		1,269

¹ Preliminary. ² Estimated. Source: Agricultural Marketing Service, U.S.D.A.

T.669

U.S. Tall Oil Consumption in Inedible Products In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	95.4	107.4	121.8	105.2	96.8	95.6	84.7	95.8	88.3	94.4	84.3	66.9	1,136
1983	100.0	96.3	106.9	92.8	98.7	109.1	98.1	114.0	93.7	94.1	95.0	82.6	1,181
1984	100.8	100.7	105.6	97.8	104.2	113.6	117.2	105.2	111.2	100.6	95.7	85.2	1,238
1985	84.1	87.4	94.3	90.4	84.6	85.8	91.7	95.3	91.7	97.6	88.2	85.1	1,076
1986	86.3	93.1	106.0	106.1	95.3	99.5	93.7	101.4	91.1	103.4	80.3	93.7	1,150
1987	109.2	101.8	107.9	104.5	100.1	112.1	109.9	99.3	104.8	111.4	94.8	87.6	1,243
1988 ¹	109.2	103.2	111.0	108.0	112.3	104.0	105.9	110.6	111.4	103.4	100.0	92.1	1,272
1989 ¹	111.7	103.2	108.0	107.8	103.3	105.7	102.1	112.4	89.3	89.1			

¹ Preliminary. Source: Statistical Reporting Service, U.S.D.A.

T.670

Tall Oil Production in the United States In Millions of Pounds

Crop Year		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1984-5	Crude	112.8	110.7	109.2	95.2	104.0	121.4	116.4	108.4	112.1	117.1	107.8	105.8	1,320.9
	Refined	12.9	11.7	10.9	10.2	9.9	11.8	9.9	10.3	9.7	7.3	10.0	10.5	125.1
1985-6	Crude	115.5	103.5	167.6	120.2	113.8	126.6	124.0	111.7	108.4	107.7	107.9	111.8	1,415.4
	Refined	9.8	9.2	8.7	8.3	8.0	7.9	8.7	8.7	8.2	8.2	9.4	9.7	104.8
1986-7	Crude	114.4	106.8	120.9	123.8	143.0	145.5	132.6	124.3	122.9	130.9	116.6	119.7	1,501.4
	Refined	9.1	7.8	8.2	9.0	8.9	8.6	9.2	10.4	8.4	10.5	9.7	9.6	109.4
1987-8	Crude	123.0	116.2	127.9	121.7	126.3	141.3	124.3	119.3	117.1	124.2	116.4	125.6	1,483.3
	Refined	9.2	9.0	8.9	9.5	11.3	10.2	9.1	9.3	5.5	8.2	9.3	10.1	109.6
1988-9 ¹	Crude	120.9	122.8	125.9	144.2	121.9	142.4	133.2	123.7	132.0	123.7	138.4	112.6	1,541.7
	Refined	9.8	8.7	8.0	9.5	7.5	9.4	9.1	8.0	9.5	8.6	8.3	7.0	103.4
1989-90 ¹	Crude	123.1												
	Refined	9.3												

¹ Preliminary. Source: Bureau of the Census

T.0578

Tall Oil Stocks in the United States In Millions of Pounds

Crop Year		Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1
1984-5	Crude	112.8	101.9	103.0	109.5	108.7	117.0	117.3	126.4	113.8	121.1	141.8	131.4
	Refined	9.9	10.9	12.6	13.0	13.6	17.7	18.3	21.9	22.9	23.8	25.9	29.4
1985-6	Crude	125.9	125.1	158.7	167.6	154.1	160.7	182.7	183.4	181.1	175.5	184.1	169.7
	Refined	19.7	19.7	19.9	19.0	21.2	19.3	25.3	29.2	27.6	26.5	25.3	30.1
1986-7	Crude	177.8	164.9	173.9	196.1	185.6	199.2	211.6	204.4	209.7	194.5	171.6	161.2
	Refined	29.1	27.7	23.4	28.3	26.5	27.3	35.8	29.3	30.9	31.8	33.4	33.7
1987-8	Crude	160.1	144.0	147.7	161.8	148.3	159.1	165.4	155.9	138.7	145.3	148.8	115.0
	Refined	33.2	34.5	35.3	39.2	30.1	27.9	28.1	28.2	27.2	22.7	22.1	22.9
1988-9 ¹	Crude	109.7	107.6	103.1	106.4	120.1	122.5	125.9	127.7	134.1	127.9	133.4	125.0
	Refined	22.3	22.1	23.4	23.2	25.3	26.5	27.0	28.3	25.8	25.9	25.8	22.5
1989-90 ¹	Crude	112.7	131.9										
	Refined	25.8	23.4										

¹ Preliminary. Source: Bureau of the Census

T.0578A

Tallow and Greases

World production of tallow and greases in 1989/90 (Oct.-Sept.) was forecast at 6.56 million tonnes, down from 6.61 million the previous season, according to the West German statistical publication *Oil World*. Declines in output were expected in the U.S. and European Community, while increases were likely in the USSR and Australia. The U.S. accounts for nearly half of worldwide tallow output. Beef production in the U.S. in 1989/90 was expected to be virtually unchanged from the previous season. Tallow is a by-product of the commercial beef industry.

Global tallow trade in 1989/90 was projected at 2.59 million tonnes, down 4 percent from the previous season. The U.S., the largest exporter, was expected to ship 1.17 million tonnes, compared with 1.26 million the year before. Exports by the EC were forecast at 620 million tonnes, down from 632 million. West Germany and France were the leading exporters in Europe. Australian shipments were estimated at 235,000 tonnes, up from 222,000 in 1988/89.

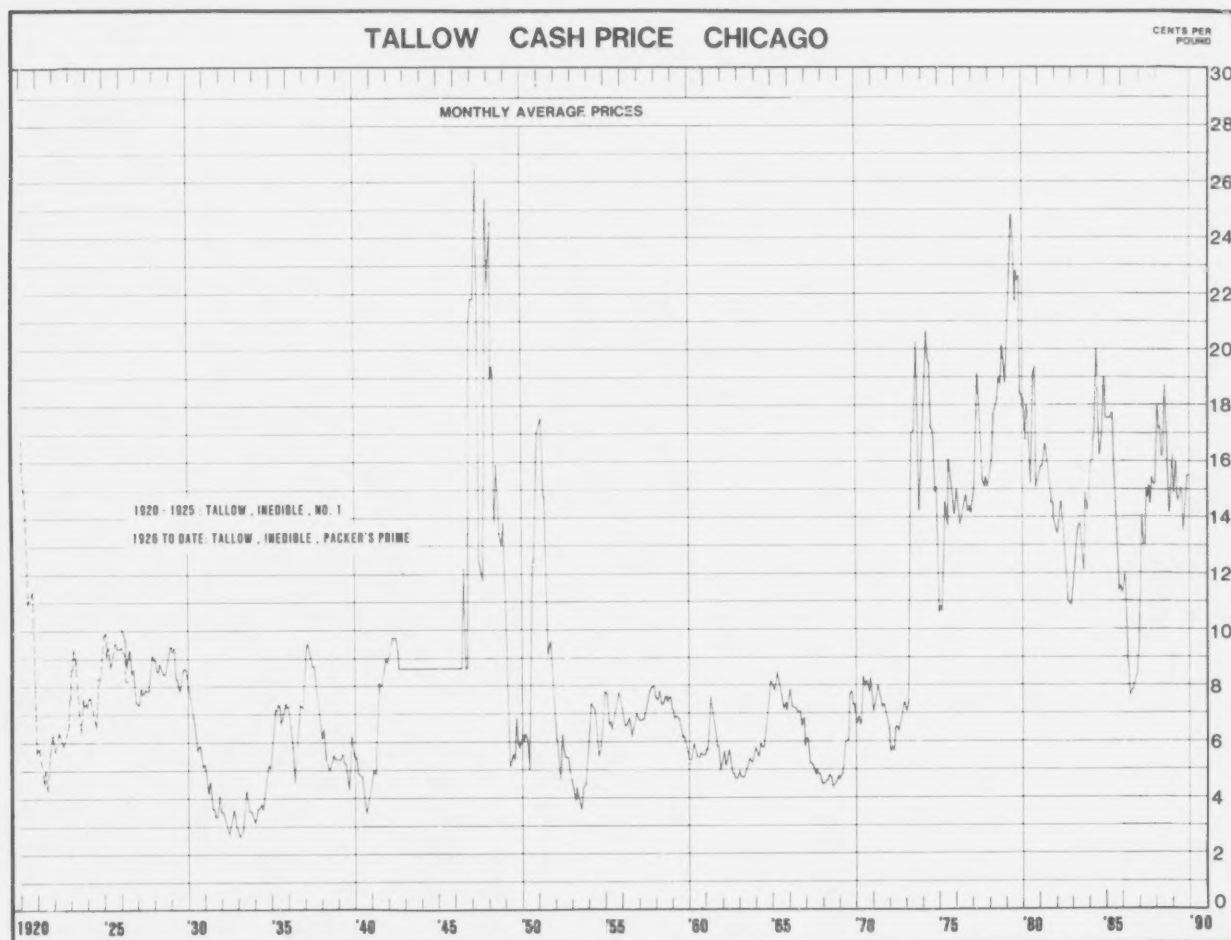
The chief importer was the EC, in which the Netherlands was the biggest buyer. Mexico, China, and Japan were other major importers.

Worldwide disappearance of tallow and greases in 1989/90 was forecast at 6.60 million tonnes, 2 percent below the previous season. Global ending stocks were projected to fall to 475,000 tonnes, the lowest in several years.

The USDA reported that U.S. consumption of edible tallow in Oct. 1988-Aug. 1989 was 704 million pounds. Of that, 699.5 million pounds was used in baking and frying fats.

The average price of U.S. fancy, bleached tallow, c.i.f. Rotterdam, was \$362/tonne in December 1989, down from \$398 a year earlier. Prices had fallen from a peak of \$473 in July 1988.

Edible tallow is used in processed foods and in frying fat in the fast food industry. It competes with vegetable oil on a price basis. Together edible tallow, inedible tallow, and grease account for over 20 percent of U.S. consumption of fats and oils.



TALLOW AND GREASES

World Production of Tallow and Greases (Edible and Inedible) In Thousands of Metric Tons

Year	Argentina	Australia	Brazil	Canada	Colombia	USSR	France	W. Germany	Italy	Japan	Mexico	Netherlands	New Zealand	United Kingdom	United States	Eastern Europe	World Total
1980	308	309	200	204	29	340	220	235	105		33	94	118	235	3,157	132	6,273
1981	313	309	210	213	33	355	205	235	106	193	52	96	125	218	3,290	140	6,357
1982	276	316	220	220	32	350	188	232	96	196	47	91	125	218	3,228	138	6,241
1983	263	319	230	215	28	355	192	235	94	197	64	89	138	222	3,351	132	6,369
1984	273	300	200	217	30	360	190	250	110	198	69	98	131	238	3,275	136	6,326
1985	293	305	220	216	30	370	180	250	115	212	69	103	156	230	3,373	142	6,527
1986	305	328	200	217	30	375	175	256	115	215	58	119	126	220	3,206	155	6,402
1987	289	350	170	205	28	380	182	257	110	219	43	127	132	233	3,112	158	6,330
1988 ¹	275	374	180	206	28	385	175	252	100	220	46	132	130	205	3,250	152	6,438
1989 ²	268	370	190	210	27	390	175	250	100	210	46	125	130	200	3,190	149	6,345

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.672

Salient Statistics of Tallow and Greases (Inedible) in the United States In Millions of Pounds

Year	Supply				Exports & Shipments	Utilization in Nonfood Products						Wholesale Prices, ¢ Per Lb.		
	Production	Imports	Stocks Jan. 1	Total		Soap	Feed	Fatty Acids	Lubricants & Oils	Other	Total ²	Edible, (Loose) Chicago	Inedible No. 1	Chl. - Bleachable Fancy
1979	5,836	—	347	6,183	2,795	663	1,239	—	1,215	—	3,117	26.2	18.8	
1980	5,916	—	390	6,306	3,254	666	1,246	813	69	177	2,979	21.6	14.3	
1981	6,124	0	413	6,537	3,134	520	1,323				2,985	30.3	15.3	
1982	6,026	0	451	6,477	3,035	545	1,418				2,898	N.A.	12.8	
1983	6,129	0	368	6,497	2,931	574	1,397				2,813	N.A.	13.4	
1984	5,881	0	376	6,257	2,735	623	1,346				2,941	28.7	14.5	
1985	5,827	0	368	6,195	2,737	535	1,363				2,782	20.1	14.3	
1986	5,543	0	362	5,905	2,562	482	1,604				2,917	13.5	9.0	
1987 ¹	5,602	0	316	5,918	2,491	571	1,727				3,082	15.6	14.9	

¹ Preliminary. ² Includes small amounts used in drying-oil products in some years. ³ Estimate. Sources: Economic Research Service, U.S.D.A.; Bureau of Labor Statistics

T.673

Edible Tallow: Supply, Disappearance, and Price, U.S. In Million Pounds, Rendered Basis

Calendar year	Supply			Disappearance					Baking or Frying Fats	Per capita (Direct use—Lbs.)	At Chi. Price ¹ ¢ Lb.
	Stocks Jan. 1	Production	Total	Domestic	Exports	Total	Direct use				
1980	57	1,043	1,101	957	88	1,047	242	648	1.1	21.6	
1981	56	1,130	1,188	992	142	1,134	225	724	1.0	30.3	
1982	54	1,110	1,163	1,030	75	1,106	303	679	1.3	N.A.	
1983	59	1,260	1,319	1,166	107	1,273	480	632	2.0	N.A.	
1984	46	1,340	1,386	1,295	54	1,349	395	821	1.7	28.74	
1985	36	1,611	1,647	1,526	80	1,595	458	1,015	1.9	20.14	
1986	41	1,523	1,564	1,469	62	1,531	429	973	1.8	13.49	
1987	33	1,258	1,291	1,186	65	1,251	239	890	1.0	15.60	
1988 ²	40	1,296	1,331	1,148	139	1,287	197	840	.8	17.86	

¹ Loose, average wholesale, Chicago. ² Preliminary. Source: Economic Research Service, U.S.D.A.

T.673A

Average Wholesale Price of Tallow, Inedible, No. 1 Packers (Prime), Delivered, Chicago In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	18.1	16.7	17.5	18.0	16.8	15.2	16.8	19.0	19.4	17.5	20.4	19.0	17.9
1981	15.8	15.8	16.0	16.5	15.6	16.0	15.2	15.0	14.5	14.5	13.9	13.6	13.6
1982	13.4	13.4	14.1	14.4	14.5	14.3	13.6	12.0	11.4	11.0	11.0	10.8	12.8
1983	11.4	12.0	12.5	13.6	13.8	13.2	12.1	13.7	14.9	14.2	14.8	15.1	13.4
1984	16.0	16.0	16.8	17.0	19.1	20.0	17.1	16.2	16.9	17.9	19.0	17.5	17.5
1985	17.5	17.5	17.5	17.7	16.1	14.3	13.6	12.1	11.4	11.5	11.3	11.5	14.3
1986	12.0	11.8	9.4	8.9	8.7	7.6	7.8	7.8	8.1	8.4	8.5	9.5	9.0
1987	15.84	15.15	13.03	12.98	15.42	14.73	15.17	14.50	15.53	15.23	15.17	15.56	14.86
1988	18.00	17.08	17.25	16.17	15.93	17.18	18.81	17.44	16.00	15.02	14.18	16.33	16.62
1989	14.90	16.00	14.86	14.60	14.70	15.10	14.48	13.52	14.13	15.25	15.50	15.50	14.88

Source: Economic Research Service, U.S.D.A.

T.674

Tea

World tea production climbed steadily during the 1980s, reaching a record 2.42 million tonnes in 1988, up 3 percent from the previous peak in 1987. India's production was 700 million tonnes in 1988, and China's was 540 million. India hoped to boost 1989 production by about 4 percent, but actual output was probably close to 1988's. India is the world's largest consumer, and it exports almost one-third of its crop. China is rapidly emerging as a major producer and exporter, and may become the world's leading exporter in the 1990s.

India produces mostly black tea, while China grows several different varieties, including black, green, oolong, and scented. China's tea production has undergone shifts, because of efforts to expand exports. India produces a small amount of green tea. Any expansion of India's green tea production would require a sizable capital investment and some guarantees that the product can be exported.

World production has slightly exceeded demand in recent years. Larger imports by the USSR and rising domestic consumption in most producing countries have kept global stocks from increasing.

Competition from other beverages has been a restraint on tea consumption in major importing nations, like the U.S. and U.K. U.S. tea imports in 1988 were 90,144 tonnes, up slightly from the previous year, as importers replenished stocks.

U.S. retail tea sales have been slipping, as consumers have shifted to soft drinks and fruit juices. Per capita tea consumption in 1988 was estimated at 7.3 gallons, unchanged from 1987. Iced tea accounted for about 80 percent of domestic use. In most other consuming nations, hot tea is preferred.

China is the largest supplier of tea to the U.S., and Argentina is a major supplier. The U.K. imports much of its tea from Kenya and Pakistan.

Tea prices in 1988 averaged about 81.3 cents/lb., based on London auction values, compared with 1987's average 77.6 cents. Prices of better-grade tea were reported to be firm in 1989, because of tight supplies. Under the auspices of the U.N., an Inter-Governmental Group on Tea met in 1989 to establish international quality standards as a means to strengthen tea prices.

World Tea Production, in Major Producing Countries In Thousands of Metric Tons

Year	Argentina	China (Mainland)	Sri Lanka (Ceylon)	India	Indonesia	Iran	Japan	Kenya	Malawi	Mozambique	Bangladesh	Taiwan	Turkey	Tanzania	USSR	World Total
1976	33.0	N.A.	196.6	511.8	61.1	22.0	100.1	62.0	28.3	13.8	33.3	24.8	59.5		92.0	1,316
1977	21.6	252.0	208.6	556.3	64.3	24.0	102.3	86.3	31.7	17.0	38.0	26.3	84.1		106.4	1,709
1978	26.3	268.0	199.0	563.8	73.2	23.0	104.7	93.4	31.7	18.1	38.0	25.9	86.5		111.2	1,755
1979	32.1	277.1	206.4	551.9	73.3	21.0	98.0	93.3	32.6	19.7	35.9	27.1	102.0		117.6	1,782
1980	40.0	304.0	191.4	569.6	98.7	20.0	102.3	89.9	29.9	22.3	40.0	24.5	95.9	17.1	129.8	1,857
1981	33.0	343.0	210.1	560.0	110.2	20.0	102.3	90.9	32.0	23.3	41.3	25.2	42.6	15.9	136.5	1,870
1982	40.0	397.0	188.6	560.7	90.2	25.0	98.5	96.0	38.5	21.0	40.9	24.1	68.0	16.2	139.8	1,934
1983	45.0	401.0	180.0	581.5	111.5	25.0	102.7	119.7	32.0	14.0	43.7	24.3	101.0	15.6	145.6	2,035
1984	46.0	414.0	209.2	639.9	126.2	25.0	92.5	116.2	37.5	11.0	38.2	24.4	113.7	16.5	151.1	2,165
1985	35.0	432.0	215.3	656.2	132.3	25.0	95.5	147.1	40.0	7.0	43.4	23.2	137.1	16.5	152.1	2,266
1986	40.0	461.0	212.7	620.8	129.5	20.0	93.6	143.3	39.0	6.4	37.6	23.9	148.3	15.1	146.6	2,245
1987 ¹	43.0	508.0	214.6	674.3	127.5	20.0	96.3	155.8	31.9	5.0	40.6	25.6	138.9	14.5	150.0	2,354
1988 ²	45.0	540.0	227.0	700.3	130.0	20.0	95.0	164.0	40.2	5.0	42.6	25.0	140.0	14.6	120.0	2,418

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.677

World Tea Exports from Producing Countries In Thousands of Metric Tons

Year	Sri Lanka (Ceylon)	China	India	Indonesia	Japan	Papua N. Guinea	Bangladesh	Taiwan	Total Asia	Kenya	Mozambique	Malawi	Total Africa	Argentina	Brazil	Grand Total
1976	199.7	61.2	237.3	47.5	3.2		30.7	21.1	608.7	59.3	12.9	29.6	142.2	25.1		782.7
1977	185.5	81.8	229.6	51.3	3.5		26.0	20.8	611.1	70.2	12.9	29.9	158.6	26.9		803.1
1978	192.6	86.9	176.1	56.2	3.4		30.9	20.4	576.7	85.0	16.7	30.6	178.1	31.0		795.1
1979	187.5	106.8	199.6	53.6	3.1		31.9	19.3	616.0	94.0	18.2	31.0	180.5	29.6		834.9
1980	184.5	108.0	224.0	67.7	2.7		31.0	18.2	658.8	74.8	18.0	31.3	157.4	33.5	7.9	858.8
1981	182.8	92.0	241.2	71.3	2.7	7.0	29.2	15.5	654.2	75.6	18.0	31.5	160.9	25.8	8.2	849.8
1982	181.1	105.8	189.9	63.7	2.5	6.5	34.4	10.0	604.0	79.8	19.0	37.1	173.0	33.1	9.0	819.5
1983	157.8	125.1	208.5	68.6	2.1	7.2	30.0	11.6	621.7	100.6	13.4	35.8	192.6	44.7	8.1	867.7
1984	204.2	140.2	217.0	85.7	2.8	7.5	23.1	11.9	703.3	91.2	7.6	37.1	180.8	42.1	9.3	936.2
1985	197.6	140.7	214.0	90.1	1.8	7.0	30.3	9.1	702.8	126.1	3.2	37.4	216.3	30.7	8.8	959.0
1986	207.6	172.0	203.1	79.0	1.3	5.2	27.7	9.0	716.0	116.5	1.8	40.2	211.5	36.3	10.9	975.4
1987 ¹	200.8	174.3	204.2	90.4	1.1	5.5	21.6	7.4	715.9	135.0	2.1	33.4	220.0	33.6	8.1	978.6

¹ Preliminary. Source: Foreign Agricultural Service, U.S.D.A.

T.678

TEA

Salient Statistics of Tea in the United States In Thousands of Metric Tons

Year	U.S. Imports from:												Sales by U.S. Retail Stores					
	Brazil	Argentina	Sri Lanka (Ceylon)	China (Mainland)	India	Indonesia	Japan	Kenya ²	Mozambique	Netherlands	Malawi	Taiwan	Total	Tea Bags	Loose Tea	Instant Tea	Instant Mixes	Total Quantity
1975		1.8	18.3	2.0	6.8	12.9	1.7	8.4	2.7	2.4	2.2	4.0	72.3	31.6	4.1	19.8	8.0	63.5
1976		2.1	21.1	3.0	8.0	11.6	3.2	10.7	2.0	1.3	4.1	4.8	82.2	33.8	4.2	19.6	8.5	66.2
1977		4.9	16.6	4.2	12.3	14.7	3.4	9.5	2.3	3.0	5.6	5.7	92.1	36.2	5.2	20.0	10.7	72.1
1978	2.0	6.7	14.0	2.9	1.7	10.7	3.2	8.2	1.4	4.1	4.2	3.0	68.8	35.5	4.4	18.7	11.7	70.3
1979	3.5	7.0	14.7	6.5	5.9	11.2	2.9	9.4	2.4	4.7	2.5	2.3	79.2	36.1	4.1	18.0	11.7	69.9
1980	2.8	10.3	12.2	8.0	4.2	13.9	2.5	6.8	5.0	5.9	2.1	3.1	83.8	37.9	3.7	17.1	12.1	70.8
1981	3.5	10.0	13.0	7.1	4.7	14.7	2.5	5.5	4.2	7.7	2.4	4.2	86.3	39.7	3.3	15.9	12.0	70.8
1982	3.5	12.2	12.4	6.9	2.9	14.0	2.4	6.9	4.0	6.1	1.4	3.8	82.8	40.6	3.0	14.9	11.7	70.3
1983	3.9	15.1	8.1	6.4	2.9	14.4	1.8	4.5	3.5	4.7	1.3	3.5	77.3	41.9	2.7	14.9	13.1	72.6
1984	3.6	18.1	9.4	9.6	3.8	15.5	2.1	3.9	2.2	4.8	.9	6.3	88.3	40.7	2.3	13.3	12.2	68.5
1985	4.3	15.2	9.8	10.9	2.9	12.8	2.1	4.2	.7	4.2	.9	2.2	79.2	41.0	2.1	12.7	11.4	67.1
1986	5.6	16.4	7.8	16.9	3.9	16.3	1.2	4.3	.3	4.1	1.2	1.5	90.5	40.4	1.8	12.1	10.6	64.9
1987	5.4	15.9	4.8	16.7	3.0	10.4	1.2	4.1	.2	3.3	2.0	.9	77.4	39.3	1.6	11.2	10.5	62.6
1988 ¹	4.1	13.8	5.9	23.0	3.6	14.4	1.1	6.2	.1	3.8	1.6	1.0	90.1	39.6	1.4	10.9	10.7	62.6

¹ Preliminary. Sources: Foreign Agricultural Service, U.S.D.A.; Bureau of Census

T.675

United States Imports of Tea In Metric Tons²

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1975	14,297	12,200	15,486	13,648	14,694	12,170	9,915	11,276	12,404	17,594	13,940	11,843	159,287
1976	11,842	12,309	15,779	15,805	13,053	13,893	14,259	15,051	19,224	15,683	16,133	18,273	181,304
1977	16,059	15,064	22,389	23,302	27,345	22,335	22,252	15,932	9,994	9,702	7,213	10,924	203,012
1978	9,023	12,791	18,648	15,450	17,523	8,286	13,141	13,788	9,390	12,502	8,877	12,332	151,751
1979	14,797	10,568	15,584	13,822	13,556	14,352	13,361	14,809	15,841	16,992	15,432	15,578	174,690
1980	18,749	17,562	17,456	18,501	15,871	16,460	14,099	11,883	11,870	14,271	12,126	15,936	184,786
1981	12,891	18,354	14,696	19,220	18,990	17,736	14,586	19,128	13,205	15,855	13,473	12,121	190,254
1982	15,055	15,464	13,787	13,176	16,518	14,309	14,286	15,598	17,425	16,207	18,222	12,567	182,613
1983	13,748	15,092	14,170	15,799	16,018	10,931	12,159	11,747	15,025	16,531	13,600	15,631	170,451
1984	15,599	15,956	20,235	18,031	17,546	12,803	22,287	12,023	14,169	20,946	12,386	12,585	194,565
1985	16,238	13,856	15,491	13,342	15,337	15,054	15,586	12,745	14,942	14,878	13,656	13,493	174,617
1986	16,923	13,219	21,719	19,002	15,747	14,970	19,732	14,626	18,110	14,864	14,965	14,086	197,963
1987 ¹	15,206	14,495	19,830	14,634	16,835	12,421	12,838	13,538	11,207	15,569	12,562	11,480	170,616
1988 ²	6,520	7,167	8,060	9,055	8,435	8,793	7,987	7,873	5,860	5,642	6,792	7,959	90,143
1989 ¹	6,610	5,966	8,290	7,170	7,193	7,124	7,394	6,790	7,070	7,634	6,964	7,053	85,258
1990													

¹ Preliminary. ² Data prior to 1988 are in thousands of pounds. Source: Department of Commerce

T.679

London Auction Tea Prices In U.S. Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	102.4	97.4	98.3	96.7	96.5	96.6	95.9	97.3	92.8	99.4	102.0	101.0	98.0
1980	102.4	105.7	102.4	100.4	104.2	106.8	100.9	102.5	95.1	92.4	101.3	98.1	101.0
1981	98.6	101.2	100.5	97.9	94.7	90.4	84.6	80.0	81.7	87.4	91.3	91.6	91.7
1982	92.0	94.2	88.5	84.7	84.8	83.3	79.9	80.8	86.7	91.4	89.8	96.1	87.7
1983	98.5	93.1	89.8	92.1	91.0	85.2	86.6	90.6	99.0	117.4	158.8	163.8	105.5
1984	194.2	169.0	166.7	160.4	161.3	144.8	130.3	133.2	154.1	164.2	155.2	147.9	156.8
1985	143.1	127.3	110.4	98.6	75.2	74.6	71.5	72.2	73.3	78.7	80.2	75.3	90.0
1986	82.1	85.7	91.5	91.3	85.9	79.7	79.8	86.5	91.6	94.1	93.6	88.6	87.5
1987	89.7	83.6	83.2	67.9	65.4	60.8	69.5	72.3	72.7	84.1	87.4	94.0	77.6
1988	96.1	88.0	87.2	83.6	77.3	75.3	66.4	67.2	74.7	82.5	87.4	89.4	81.3
1989	87.5	82.4	80.6	77.3									

Source: International Tea Committee

T.679a

Tin

In 1989, there was more movement towards a settlement of the International Tin Council's (ITC) debt problems, which date back to the collapse of the ITC's buffer stock and the halt of tin trading on the London Metal Exchange in 1985. The High Court in the United Kingdom dashed the hopes of creditors when it issued a ruling that absolved the ITC of legal obligations to creditors, declaring that an international agreement cannot be enforced in British courts.

In November, the debtor countries involved in the dispute reportedly reached agreement among themselves to settle the ITC's debts for \$280 million. However, in July the ITC nations were unable to agree on a proposed \$240 million compromise, and the entire situation, while seemingly drawing closer to a settlement, remained unresolved.

The proposed \$280 million counter by the ITC creditors, which was down from an original settlement offer of \$290 million, represented about 30-40 percent of the total amount claimed due by the creditors. The creditors, comprised of 36 entities, including 13 banks and 19 brokers, were still actively searching for a way to press their claims or to reach a settlement with the ITC.

In March of 1989, the Association of Tin Producing Countries (ATPC), the successor to the ITC, decided to raise total exports for member nations to 106,400 tonnes for the tin year (Mar.-Feb.). The quota in the previous year was 101,900 tonnes. The seven ATPC member nations—Malaysia, Thailand, Indonesia, Bolivia, Nigeria, Australia, Zaire—and two observer nations, Brazil and China, also held talks on how to lower excess world tin stocks.

In the first nine months of 1989, U.S. tin consumption totaled 39,400 tonnes, compared with full-year 1988 consumption of 45,073. Tinplate used 7,970 tonnes in the first nine months of 1989, compared with 11,064 tonnes in all of 1988, and solder accounted for 7,350 tonnes in the review period,

versus 15,288 in all of 1988.

Because domestic mine production is negligible, the U.S. relies on imports and secondary recovery methods for its supplies. In the first nine months of 1989, 22,890 tonnes of tin metal were imported from nineteen nations. The major supplier of tin metal to the U.S. was Brazil, which accounted for 6,684 tonnes, followed by China with 4,001 tonnes and Indonesia with 3,259 tonnes.

Because of political events in China in 1989 and the subsequent U.S. cooling of relations, U.S. tin imports from countries other than China were likely to increase. Imports from Indonesia, a low-cost producer with good trade relations with the U.S., were expected to rise.

The U.S. imports a small amount of tin concentrates, with Bolivia and Peru supplying all 2,837 tonnes imported in 1988, and Peru all of the 149 tonnes imported in the first nine months of 1989.

Recent developments in can technology were expected to substantially enhance tin consumption in the near future. A new steel can end was developed by Weirton Steel Corporation. The new steel can ends are made from tinplate and precoated with vinyl on the inside and epoxy on the outside.

Campbell Soup Company is one of the world's largest consumers of tinplate. The company, in an effort to make its stock more attractively priced, embarked on a world-wide restructuring program in 1989. Four U.S. plants were slated to close in the early 1990s, including the company's flagship operation in Camden, N.J. Production from these plants will be shifted to three larger, newer facilities.

Futures Market

Tin trading on the London Metal Exchange resumed on June 1, 1989. Futures also are traded in Kuala Lumpur.

World Mine Production of Tin (Content of Ore) In Thousands of Metric Tons

Year	Australia	Bolivia ¹	Brazil	Burma	China ³	Indonesia	Japan	Malaysia	Nigeria	Zimbabwe	South Africa	Thailand	United Kingdom	USSR	Zaire (Congo)	World Total
1985	6.4	16.1	26.5	1.8	15.0	21.8	.5	36.9	1.0	1.7	2.2	16.9	5.2	23.0	3.1	188.6
1986	8.5	10.5	25.2	1.5	15.0	24.0	.5	29.1	1.1	1.7	2.1	17.1	4.3	23.5	2.8	179.4
1987 ²	9.0	7.0	28.9	.9	15.0	27.0	.1	30.4	1.1	1.6	1.4	15.0	4.0	24.0	1.5	179.7
1988 ³	7.0	11.0	44.0	1.0	25.0	27.0		31.0	1.0			14.0	5.0	17.0	2.0	201.0
1989 ³	8.0	12.0	47.0	1.0	27.0	28.0		31.0	1.0			14.0	5.0	17.0	2.0	210.0

¹ Exports. ² Preliminary. ³ Estimate. Source: Bureau of Mines

T.682

World Smelter Production of Tin In Thousands of Metric Tons

Year	Australia	Thailand	Bolivia	Brazil	China	Zimbabwe	West Germany	Indonesia	Japan	Malaysia	Nigeria	Portugal	South Africa	United Kingdom	United States	USSR	Total
1983	2.9	18.5	14.2	13.0	15.0	1.2	.4	28.4	1.3	53.3	1.2	.4	2.7	6.5	2.5	24.0	200.1
1984	2.9	19.7	15.8	18.9	15.0	1.2	.4	22.5	1.4	46.9	1.4	.4	1.6	7.1	4.0	25.5	201.6
1985	2.7	18.0	12.9	24.7	15.0	1.2	.4	20.9	1.4	45.5	1.0	.4	2.1	7.5	3.0	25.5	197.8
1986	1.4	19.7	7.7	24.4	15.0	1.1	.4	22.1	1.3	43.9	1.0	.2	2.0	9.2	3.2	26.0	191.4
1987 ²	.6	15.3	2.8	26.4	15.0	1.1	.3	23.8	.9	45.0	1.0	.1	1.5	12.0	3.9	26.5	189.6

¹ Imports into the U.S. of tin concentrates (tin content). ² Preliminary. ³ Estimate. Source: Bureau of Mines

T.683

TIN

Tin Foreign Trade of the United States In Metric⁵ Tons

Year	Ex-ports (Metal) ²	Concentrates ³ (Ore)			Imports (For Consumption) Bars, Blocks, Pigs, etc. ⁴ (Metal)												United King- dom
		Total All Ore	Boivia	Peru	Total All Metal	Aus- tralia	Bel- gium	Bolivia	Brazil	China	Indo- nesia	Malaysia	Nige- ria	Singa- pore	Thai- land		
1977	5,480	6,724	6,667	—	47,774	—	—	3,358	2,380	381	5,294	27,084	2	207	7,780	513	
1978	4,692	3,873	3,541	—	46,776	—	155	5,768	1,810	1,571	5,664	23,448	—	230	6,865	468	
1979	569	4,529	3,745	—	48,355	—	100	5,387	933	185	5,429	23,448	—	1,070	10,440	550	
1980	595	840	528	—	45,982	145	190	5,597	2,031	858	6,477	15,548	770	864	12,414	416	
1981	2,361	232	—	232	45,874	552	—	8,277	1,129	2,032	7,096	13,163	520	656	11,967	46	
1982	5,769	1,961	192	1,416	27,939	334	10	4,340	2,409	2,632	5,744	2,364	124	600	9,116	55	
1983	1,340	969	257	341	34,048	390	45	5,739	5,604	1,938	6,004	4,704	265	1,029	7,436	18	
1984	1,429	3,272	271	2,502	41,224	288	137	5,438	10,220	1,640	4,985	6,622	60	781	9,531	583	
1985	1,478	1,616	22	1,506	33,830	266	—	1,815	11,021	4,513	4,586	379	—	1,886	6,373	48	
1986	1,547	3,936	259	3,676	35,768	94	—	4,893	9,456	2,955	4,149	6,230	—	691	1,901	730	
1987	1,318	2,953	732	2,165	41,150	1,406	302	3,476	13,089	8,044	4,001	4,959	79	743	1,460	467	
1988 ¹	1,209	2,837	923	1,914	43,493	1,342	—	3,926	16,213	6,223	5,334	5,317	41	1,342	670	1,354	
1989 ⁵	1,100	500	—	500	33,000	1,500	—	4,200	10,000	4,800	5,100	2,600	—	650	300	600	

¹ Preliminary. ² Ingots, Pigs & Bars. Excludes re-exports from 1979. ³ Tin content. ⁴ Also grain, or granulated. ⁵ Estimate.
Source: Department of Commerce

T.684

United States Tin (Pig) Consumption (Total) In Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1977	5,600	5,500	6,800	5,800	5,800	6,000	5,200	5,800	5,900	5,400	5,000	5,100	60,732
1978	5,400	5,000	5,500	5,200	5,700	5,400	4,600	5,200	5,200	5,300	5,400	4,900	61,531
1979	5,400	5,500	6,400	5,400	5,400	5,300	4,900	4,900	5,000	5,500	5,000	4,600	62,465
1980	5,500	5,300	5,750	5,300	4,600	4,100	3,700	3,900	4,150	4,300	4,050	3,750	56,362
1981	4,300	4,400	4,100	4,600	4,400	4,350	3,900	4,200	3,950	3,900	3,400	2,950	54,373
1982	3,400	3,300	3,750	5,100	5,000	5,100	4,900	4,700	4,700	4,600	4,500	4,400	53,450
1983	4,400	4,700	4,900	4,700	4,700	4,800	4,300	4,600	4,700	4,800	4,400	4,800	55,800
1984	4,600	4,300	5,300	3,900	4,500	4,400	4,100	4,400	4,100	4,000	3,300	3,500	50,400
1985	4,000	3,900	4,600	4,500	4,600	4,400	4,200	4,400	4,300	4,500	4,200	4,000	51,600
1986	4,300	4,000	4,200	4,500	4,400	4,400	4,100	4,100	4,000	4,300	3,900	3,900	50,100
1987 ¹	4,100	3,900	4,200	4,700	4,300	4,200	4,400	4,400	4,400	4,300	4,600	4,400	44,219
1988 ¹	4,600	4,700	4,800	4,700	5,300	5,600	5,300	5,300	5,500	5,600	4,900	4,900	45,073
1989 ¹	4,800	4,700	4,300	4,500	4,500	4,100	4,000	4,200	4,100	4,200			

¹ Preliminary. Source: Bureau of Mines.

T.681

United States Tin Stocks (Pig—Industrial) In Metric Tons

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1977	7,282	8,032	7,883	5,874	6,157	5,644	4,720	6,305	5,557	5,378	9,124	7,272
1978	8,441	7,626	6,628	6,291	7,785	8,139	7,846	7,817	7,260	5,774	4,975	5,666
1979	5,040	4,594	4,254	5,891	6,097	5,938	6,317	6,270	6,096	5,058	4,901	4,244
1980	4,238	7,720	6,882	7,527	5,443	7,263	6,592	6,544	6,051	5,180	5,208	5,086
1981	5,504	5,968	5,745	5,229	5,725	5,978	6,227	6,465	5,663	5,710	5,325	5,563
1982	5,988	3,872	3,490	3,829	5,222	4,953	4,653	3,888	2,910	2,940	2,970	3,437
1983	3,152	4,609	3,513	3,815	4,026	3,527	3,634	3,931	4,091	3,604	3,074	3,180
1984	3,020	2,968	2,268	2,840	2,646	3,119	2,795	2,688	2,837	2,495	2,512	2,326
1985	2,592	2,766	2,283	2,407	2,228	2,853	3,042	2,762	2,663	2,985	4,121	4,913
1986	5,665	5,310	4,692	3,097	4,127	3,987	4,032	4,166	4,246	3,497	3,554	4,681
1987 ¹	4,802	5,232	6,394	6,321	7,263	8,087	6,663	4,288	5,373	5,533	6,402	5,460
1988 ¹	4,428	4,490	5,989	5,631	5,868	6,128	6,456	5,665	4,350	4,171	4,371	4,781
1989 ¹	4,943	4,242	3,894	4,320	3,717	4,945	4,912	5,597	5,872	6,241	5,333	

¹ Preliminary. Source: Bureau of Mines

T.680



Average Price of Ex-Dock Tin in New York¹ In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1978	591.19	595.93	557.48	537.85	570.58	600.95	606.21	641.80	679.66	739.69	758.84	695.86	631.34
1979	684.56	724.57	746.14	740.06	745.18	760.14	712.31	739.93	762.03	785.54	801.23	830.88	756.87
1980	836.46	866.39	900.23	872.21	861.84	845.19	836.95	834.61	861.92	832.92	788.67	751.36	840.73
1981	739.94	705.76	691.70	677.38	652.07	652.77	680.22	746.06	777.36	798.70	813.00	801.59	728.05
1982	787.41	749.93	669.51	649.58	662.35	643.00	638.00	636.33	644.33	627.94	627.93	630.18	663.88
1983	648.90	653.89	669.18	692.29	683.36	670.54	663.13	653.10	649.31	650.65	653.02	636.71	660.34
1984 ¹	590.60	592.10	603.40	605.10	601.70	602.20	593.50	594.70	590.20	578.60	574.40	566.10	591.05
1985	542.10	532.00	533.80	559.10	557.70	576.30	594.90	593.80	578.60	580.50	N.Q.	N.Q.	564.88
1986	N.Q.	N.Q.	350.64	274.98	265.04	260.28	261.51	261.26	260.69	267.48	292.84	308.26	280.30
1987	321.56	320.39	317.66	320.98	323.60	316.96	307.59	314.63	321.86	324.81	332.21	327.65	320.83
1988	326.68	321.12	324.79	323.85	325.28	337.37	342.18	351.14	355.20	347.84	351.10	352.42	338.25
1989	355.80	377.77	419.64	486.72	484.42	474.15	458.64	415.80	395.99	379.67	329.10	324.79	408.54
1990	317.89	296.28											

¹ Data prior to 1984 are for Straits (Alloyer Price). Source: American Metal Market

TIN

Secondary Tin Recovered in the United States In Metric Tons

Year	Tin-plate Scrap Treated (Ths. Tons)	Tin Recovered at Detinning Plants					Tin Recovered by Form of Recovery									
		Tin Recovered In the Form of			Weight of Tin Com-pounds Produced	Avg. Quantity of Tin Recov. Per Ton of Tin-Scrap (Kilog.)	Avg. Delivered cost of Tinplate Scrap. \$ per Metric Ton	Tin Metal	Bronze & Brass	Solder	Type Metal	Babbitt	Anti-Monial Lead	Chemical Com-pounds	Misc. ³	Grand Total
		Metal	Com-pounds ²	Total												
1977	667.4	1,376	365	1,741	1,516	2.61		1,668	10,397	4,094	708	694	565	365	12	18,503
1978	714.9	1,324	463	1,787	1,803	2.50	60.04	1,565	12,419	4,363	1,038	521	712	463	19	21,100
1979	841.4	1,536	433	1,969	1,256	2.34	90.73	1,767	12,090	5,282	584	441	867	433	29	21,493
1980	766.9	1,457	321	1,778	1,533	2.32	89.38	1,703	10,402	4,423	525	378	856	321	30	18,638
1981	668.0	1,328	265	1,593	1,220	2.38	102.42	1,587	8,894	3,035	576	261	791	265	29	15,438
1982	464.6	810	447	1,257	1,754	2.37	56.16	1,067	6,971	2,723	222	237	1,015	447	101	12,783
1983	486.5	928	182	1,110	1,284	1.98	60.60	1,180	8,517	3,072	172	185	803	182	94	14,205
1984	492.8	824	301	1,125	1,498	2.24	68.01	1,107	9,146	3,653	142	123	894	301	51	15,417
1985	460.1	1,302	186	1,488	338	3.23	53.69	1,302	8,045	3,565	122	88	791	186	10	14,109
1986	499.7	1,134	N.A.	1,134	N.A.	2.25	44.76	1,134	7,996	3,676	197	66	891	N.A.	17	13,977
1987 ¹	506.5	1,151	N.A.	1,151	N.A.	2.23	44.15	1,151	10,082	3,765	66	76	623	N.A.	30	15,793
1988 ¹		578						578	9,778	3,619	70	112	902		29	15,088

¹ Preliminary. ² Tin content. ³ Includes foil, cable lead &terne metal. Source: Bureau of Mines

T.687

U.S. Consumption of Primary and Secondary Tin In Metric Tons

Year	Net Import Reliance as a % of Apparent Consumption	Industry Stocks Jan. 1 ²	Net Receipts				Available Supply	Stocks Dec. 31 (Total Available Less Total Processed)	Total Processed	Consumed in Mfg. Pdt's.Z
			Primary	Secondary	Scrap	Total				
1977	82	16,894	48,215	4,025	10,604	62,844	79,738		62,880	60,732
1978	79	16,858	46,821	2,541	10,499	59,861	76,719		63,135	61,531
1979	80	13,584	50,126	2,636	10,659	63,421	77,005		64,067	62,465
1980	79	7,075	43,545	2,461	7,709	53,715	60,790	3,593	57,197	56,362
1981	77	8,835	41,162	5,692	8,050	54,904	63,739	8,640	55,099	54,373
1982	68	8,717	35,843	6,507	7,830	50,180	58,897	12,328	46,569	46,295
1983	73	7,549	36,494	5,412	7,435	49,341	56,890	11,098	45,792	45,547
1984	74	8,063	38,813	6,110	6,791	51,714	59,777	11,145	48,632	48,315
1985	72	8,430	38,006	8,904	7,471	54,381	62,811	13,928	48,883	48,669
1986	74	9,336	35,475	11,636	6,346	53,457	62,793	18,917	43,876	43,522
1987 ¹	74	9,876	38,446	11,707	6,635	56,788	66,664	21,956	44,708	44,196
1988 ³	78									
1989 ³	73									

¹ Preliminary. ² Includes tin in transit in the U.S. ³ Estimate. Source: Bureau of Mines

T.686

Consumption of Tin in the United States by Finished Products In Metric Tons of Contained Tin

Year	Alloys	Tin-plate ²	Solder	Babbitt	Bronze & Brass	Collap. Tubes & Foil	Tinning	Chemicals ³	Tin Powder	Type Metal	Bar Tin & Anodes	White Metal	Other	Total	
														Primary	Secondary
1977		18,539	17,315	2,093	8,606	787	2,323	5,727	1,287	202	578	1,655		47,596	13,136
1978		17,280	17,770	2,346	9,048	673	2,431	4,557	1,360	171	424	1,484		48,403	13,128
1979	2,428	17,929	18,022	2,243	8,690	686	2,584	4,797	1,435	140	567	1,258	1,686	49,496	12,969
1980	134	16,346	15,618	2,380	7,478	526	2,577	N.A.	1,109	N.A.	486	914	8,794	44,342	12,020
1981	2,435	13,306	15,799	3,844	7,041	561	2,491	4,417	983	52	455	1,201	1,788	40,229	14,144
1982	N.A.	11,134	13,142	1,915	4,400	N.A.	1,887	N.A.	906	N.A.	509	1,177	11,225	33,019	13,276
1983	N.A.	9,462	14,120	2,881	4,583	N.A.	1,759	N.A.	793	N.A.	654	937	10,358	34,301	11,246
1984	N.A.	8,825	17,249	2,684	4,998	N.A.	1,748	N.A.	1,057	N.A.	526	958	11,396	37,201	11,114
1985	N.A.	9,321	18,621	1,488	4,330	N.A.	1,511	N.A.	976	7	466	937	12,110	36,524	12,145
1986	N.A.	8,660	15,810	1,324	3,502	N.A.	1,437	N.A.	1,002	N.A.	449	1,134	10,204	33,324	10,198
1987 ¹	N.A.	10,357	15,240	1,060	3,559	N.A.	1,398	N.A.	N.A.	N.A.	703	1,175	10,704	35,597	8,599
1988 ¹	N.A.	11,064	15,288	916	3,934		1,406				557	1,131	10,777	37,008	8,065
1989 ⁴		13,000	14,500	800	3,500		1,200				800	1,000	10,000	39,000	10,000

¹ Preliminary. ² Includes small quantity of secondary pig tin & tin acquired in chemicals. ³ Including tin oxide. ⁴ Estimate. Source: Bureau of Mines

T.688

Titanium

Titanium usage was expected to increase sharply in the coming decade, as demand from the aerospace industry outstrips current production capacity.

Because of the market's robust condition, producers of the lightweight metal were taxed in 1989 to the point that industry lead times extended past one year. Prices of titanium sponge, a key component in aircraft manufacture, gained 15 percent in 1989 to \$5.35 a pound, with further increases expected in 1990.

For the first eight months of 1989, titanium sponge consumption totaled 18,638 tonnes, compared with 1988's full-year usage of 21,003. Consumption of titanium scrap amounted to 13,586 tonnes for the period, versus 13,586 in full-year 1988, while use of titanium ingot was 21,697 tonnes, versus 1988's full-year total of 35,556.

Production of titanium sponge in January-August 1989 totaled 18,450 tonnes, compared with full-year 1988 output of 22,270. Ingot production was also running at a higher pace; it was 31,217 tonnes in

the review period, compared with full-1988 production of 38,856. Output of mill castings totaled 21,355 tonnes for the eight-month period, versus 27,837 in full-1988.

In addition to titanium's use as a key component in aircrafts, titanium dioxide is an important industrial chemical used in paints, varnishes, and lacquers. For the first eight months of 1989, dioxide production was 671,322 tonnes, versus 926,745 in full-year 1988.

While the U.S. produces most of its titanium dioxide domestically, it is not self-sufficient. Imports for the first eight months totaled 117,576 tonnes, compared with 1988's full-year total of 185,468.

Titanium usage was expected to grow through the 1990s, as there is no substitute for it in aircraft and space use without some sacrifice of performance. For industrial uses, high-nickel steel, zirconium, and other superalloy metals may be substituted, but at cost. There is no cost-effective substitute for titanium dioxide pigment.

Average Titanium Prices in the United States

Year	Ilmenite— F.O.B. Australian Ports ² \$ Tonne	Slag, 85% TiO ₂ F.O.B. Richards Bay, South Africa \$ Tonne	Ilmenite Large Lots Bulk, F.O.B. U.S. East Coast \$ Tonne	Rutile Large Lots Bulk, F.O.B. U.S. East Coast ³ \$ per Short Ton	Rutile Bagged F.O.B. Australian Ports \$ per Short Ton	Synthetic F.O.B. Mobile, Ala. \$ per Short Ton	Dec. 31 in \$ per pound		
							Titanium Metal Sponge	Titanium Dioxide Pigments Anatase	Titanium Dioxide Rutile
1978	50			340			3.28	0.460	0.510
1979	50			390			3.98	0.530	0.590
1980	55			440		310	7.02	0.570	0.630
1981	70-75		39	450-475		340	7.65	0.690	0.750
1982	70-75	170-180	44-45	450-475		350	5.55	0.690	0.750
1983	70-75	187-198	44-45	400-430		350	5.55	0.690	0.750
1984	36-38	200	44-45	320-340	319-335	350	5.55	0.690	0.750
1985	38-42	212	50-56	350-360	315-328	350	3.50-4.00	.72-.73	0.780
1986	47-53	225-230	50-56	355-375	374-386	350	3.90-4.30	.75-.77	.80-.82
1987 ¹	46-52	235-245	50-56	355-375	372-392	350	4.00-4.20	.75-.77	.80-.82
1988 ⁴	55-66	250-275			469-491		4.50	.80-.85	.85-.90
1989 ⁴	70	288					5.00		1.02

¹ Preliminary. ² Prior to 1984 prices are for TiO₂ F.O.B. Atlantic Seaboard. ³ Prior to 1984 prices are for F.O.B. Eastern Ports. ⁴ Estimate
Source: U.S. Bureau of Mines T.690

Salient Statistics of Titanium⁴ in the United States In Short Tons

Year	Ilmenite			Stocks Dec. 31 (TiO ₂)	Titanium Slag			Rutile Imports ^{3, 4}	Stocks Dec. 31 (TiO ₂)	Exports of Titanium Products			
	Production (Gross Wt.)	Shipments (TiO ₂)	Imports ³		Consumption (TiO ₂)	Imports ³	Stocks (TiO ₂)			Ores & Concentrates	Scrap	Dioxide & Pigments	Ingot., Billets, Etc.
1979	639,292	389,535	184,478	462,415	106,346	111,210	56,917	283,479	119,947	9,903	4,967	51,456	1,984
1980	556,646	358,181	357,488	584,280	133,933	194,994	127,981	281,605	147,670	17,830	3,300	45,795	3,278
1981	542,357	310,854	236,217	543,114	186,020	268,825	150,706	202,373	153,770	7,297	3,280	62,432	4,203
1982	263,391	145,725	348,366	470,776	168,433	247,845	103,667	163,325	165,762	21,682	4,287	72,823	2,196
1983	N.A.	N.A.	259,328	254,237	127,267	138,708	61,026	111,578	122,189	4,391	5,379	91,702	1,371
1984	N.A.	N.A.	409,605	128,507	152,534	209,839	52,397	180,508	96,186	8,651	4,109	106,124	2,071
1985	N.A.	N.A.	506,804	147,357	199,610	291,828	83,821	179,663	109,319	27,759	6,760	101,954	2,248
1986	N.A.	N.A.	465,617	169,723	221,959	361,872	65,213	174,820	107,491	5,314	6,403	112,227	2,119
1987 ¹			396,435	129,717	223,478	450,608	106,882	160,730	110,217	6,000	5,603	120,029	2,719
1988 ²			585,000					220,000					
1989 ²			545,000					290,000					

¹ Preliminary. ² Estimate. ³ For consumption. ⁴ Natural & synthetic. Source: Bureau of Mines

T.693

TITANIUM

World Production of Titanium Ilmenite Concentrates² In Thousands of Short Tons

Year	Australia ⁶	Brazil	Canada ²	China	Finland	India	Sierra Leone	Malaysia (Exports)	Norway	South Africa ³	Sri Lanka (Ceylon)	United States ⁴	USSR	World Total ^{2,3}
1979	1,327	14.5	525.8	N.A.	131.9	161.9		220.3	903.7	316.0	61.0	639.3	450.0	4,752
1980	1,553	18.6	934.4	N.A.	175.3	185.1		208.3	912.5	379.0	37.4	556.6	460.0	5,420
1981	1,478	17.5	836.9	150.0	178.0	179.1		190.4	727.1	408.0	88.2	542.4	470.0	5,266
1982	1,289	12.5	737.4	150.0	185.0	168.6		111.6	608.2	420.0	75.3	263.4	475.0	4,496
1983	1,003	33.6	700.0	154.0	180.7	148.2		245.5	612.8	460.0	90.1	N.A.	480.0	4,108
1984	1,681	45.1	800.0	154.0	184.0	154.3		296.0	718.5	460.0	112.5	N.A.	485.0	5,091
1985	1,579	84.2	930.0	154.0	140.1	157.6		346.9	811.1	480.0	126.6	N.A.	490.0	5,301
1986	1,380	83.2	937.0	154.0		154.0		457.4	885.8	480.0	110.0	N.A.	496.0	5,152
1987 ¹	1,535	82.5	992.0	154.0		154.0	6.2	551.0	939.5	715.0	110.0	N.A.	500.0	5,768

¹ Preliminary. ² Includes Ti slag containing approx. 70% TiO₂. ³ Contains 85% of TiO₂. ⁴ Includes a mixed product containing ilmenite, leucocoxene, & rutile. ⁵ Includes slag & concentrate. ⁶ Includes leucocoxene. Source: Bureau of Mines T.692

World Production of Titanium Rutile Concentrates In Short Tons

Year	South Africa	Australia	USSR	Brazil	Sierra Leone	India	Sri Lanka (Ceylon)	United States	World Total
1979	46,000	302,620	11,000	484	8,267	5,445	16,176	N.A.	389,992
1980	53,000	343,639	11,000	472	52,356	5,908	14,097	N.A.	480,472
1981	55,000	254,432	11,000	190	55,992	7,397	14,662	N.A.	398,673
1982	52,000	243,277	11,000	258	52,590	6,374	7,950	N.A.	373,449
1983	62,000	180,089	11,000	510	79,146	6,100	8,921	N.A.	347,766
1984	62,000	187,860	11,000	454	100,641	6,600	7,129	N.A.	375,684
1985	61,000	233,265	11,000	786	88,858	7,496	9,434	N.A.	411,839
1986 ¹	61,000	237,850	11,000	546	107,034	8,000	8,000	N.A.	433,430
1987 ²	61,000	283,000	11,000	550	124,892	8,000	8,000	N.A.	496,442
1988 ²	51,000	219,000	N.A.	1,000	120,000	7,000	5,000	N.A.	413,000
1989 ²	63,000	250,000		1,000	120,000	8,000	6,000		458,000

¹ Preliminary. ² Estimate. Source: Bureau of Mines

T.691

World Production of Titanium Sponge Metal & U.S. Consumption of Titanium Concentrates

Year	Production of Titanium (in short tons)						U.S. Consumption of Titanium Concentrates, by Products (in short tons)						
	Sponge Metal ¹						Ilmenite (TiO ₂ Content)			Rutile (TiO ₂ Content)			
	China	USSR	United Kingdom	Japan	United States	Total	Pigments	Misc.	Total	Welding Rod Coatings	Pigments	Misc.	Total
1979		43,000	2,600	14,000	N.A.	—	475,342	11,886	478,228	9,947	230,776	52,189	292,912
1980		45,000	2,600	21,257	N.A.	—	502,108	11,207	513,315	6,876	211,599	59,407	277,882
1981	2,000	42,000	2,600	27,500	26,419	100,519	501,301	9,721	511,022	6,944	192,779	66,873	266,596
1982	1,500	44,000	2,600	18,600	15,600	82,300	345,618	6,775	352,393	5,275	184,403	35,435	225,113
1983	2,000	45,000	2,000	11,600	13,966	74,000	468,279	6,006	474,285	3,649	210,949	35,820	250,418
1984	2,000	46,000	2,500	16,938	24,326	92,000	492,658	6,319	498,977	3,911	231,808	62,920	298,639
1985	2,000	47,000	1,500	16,938	23,257	91,000	474,561	6,450	481,011	4,881	239,893	41,714	286,483
1986	2,000	48,000	1,500	18,000	17,500	87,000	511,070	1,655	512,725	7,667	244,178	57,539	309,384
1987 ³	2,000	49,000	1,500	11,105	19,675	83,000	504,178	1,912	506,090	4,168	271,658	56,558	332,384
1988 ²	2,000	46,000	1,500	16,500	24,000	88,000							
1989 ²	2,000	47,000	1,500	20,000	22,270	94,000							

¹ Unconsolidated metal in various forms. ² Estimated. ³ Preliminary. Source: Bureau of Mines

T.689

Tobacco

U.S. tobacco output in 1989 was estimated by the USDA at 1.5 billion pounds, 9 percent above the previous season. North Carolina, Kentucky, and Tennessee were the major producing states. Harvested area rose by 11 percent, while the average yield per acre was down marginally at 2,130 pounds. Use of tobacco was expected to exceed production, causing a drawdown in stocks. About two-thirds of U.S. tobacco leaf went into domestic manufacture, and about one-third was exported.

U.S. cigarette consumption in 1989 was expected to fall for the fifth year in a row. Consumption was estimated at 542 billion, down 4 percent from the previous season. The decline was attributed to higher prices and increased smoking restrictions.

Over the first seven months of 1989, U.S. cigarette exports rose by 14 percent to 75 billion. The major importers of U.S. cigarettes were Japan, Belgium-Luxembourg, and Hong Kong.

Retail tobacco prices rose by 14 percent in 1989. Manufacturers raised cigarette prices in December 1988 and June 1989, and the increases were the largest in six years. Sixteen states enacted or imposed cigarette tax hikes in 1989; the increases averaged 7.5 cents per pack. According to USDA, the weighted-average state tax on cigarettes was 20.5 cents per pack in mid-1989. Many cities, local governments, and states tax cigarettes. The federal excise tax has remained at 16 cents a pack since January 1983.

Consumption of large cigars was expected to fall from 1988's 2.5 billion, a trend in place for 19 years. The average number of cigars smoked by males 18 and over was 28, about 3 percent less than in 1988. Consumption of smoking tobacco, used in pipes and self-rolled cigarettes, was forecast to fall 4 percent. Chewing tobacco use also declined.

Output of flue-cured tobacco, the type most commonly produced, was forecast at 873 million pounds in 1989. Carry-in stocks were estimated at 30 million to 35 million pounds, indicating over 900 million pounds would be available. Flue-cured harvested area was put at 401,000 acres, up 9 percent, while the average yield fell 2 percent. Heavy rains in some areas kept yields below year-earlier levels. The quality of the crop was better than the previous year, and auction prices were higher.

In 1988/89, disappearance of flue-cured tobacco

totalled 885 million pounds, down 4 percent. Domestic use of 522 million pounds was 3 percent less than a year earlier and reflected lower cigarette output, due to declining sales. Exports were 363 million pounds, down 6 percent, because of reduced cigarette consumption and price-competitive exportable supplies in other countries. Some importing countries had shortages of foreign exchange. Buyers purchasing more flue-cured tobacco included Britain, West Germany, and Japan. However, the Netherlands, Denmark, Taiwan, and Egypt bought less. Exports in 1989 were likely to increase modestly with lower U.S. prices and a better-quality crop.

The 1989 U.S. burley tobacco crop, used mostly in cigarettes, rose by 13 percent to 538 million pounds. Harvested area increased by 13 percent to 255,300 acres, while yields averaged 2,108 pounds per acre. Domestic use of burley tobacco in 1988 was 435 million pounds, down from 478 million. Exports were 160 million pounds, up slightly from the previous season. The major market for burley tobacco in 1988/89 was Japan, with purchases of 25 million pounds. Other markets for burley were West Germany and the Netherlands. World burley production rose by 12 percent, with increases in Brazil, Malawi, Mexico, and China.

Production of Maryland tobacco, used in cigarettes, was estimated at 19.1 million pounds, up 4 percent. Domestic use of Maryland tobacco in 1988/89 was 22 million pounds, while exports were 5 million.

U.S. cigarette manufacturers looked to the Pacific Rim to boost exports. Declines in domestic consumption and reduced exports to Europe indicated that U.S. cigarette manufacturers would have to locate new markets.

U.S. Government Program

The 1989 national support level for flue-cured tobacco averaged \$1.47 per pound, and for burley it was \$1.53. For 1990, the flue-cured and burley price supports were to be the 1989 levels, adjusted by changes in the five-year moving average of prices and changes in the cost of production index. Average prices carry two-thirds of the weight in the calculations, and cost of production carries one-third.

World Production of Leaf Tobacco In Thousands of Metric Tons (Farm Sales-Weight³)

Year	United States	Brazil	Canada	China	USSR	France	Greece	India	Indonesia	Italy	Japan	Pakistan	Philippines	Turkey	Zimbabwe	World Total ¹
1982	904.7	378.0	70.2	2,179	307.0	44.5	131.4	520.1	111.4	145.0	139.4	68.3	90.4	207.7	93.1	6,878
1983	648.2	378.0	111.7	1,381	385.0	44.5	111.7	590.6	126.0	156.0	136.7	64.6	91.7	234.0	99.0	6,044
1984	783.8	392.0	91.3	1,789	381.7	35.9	140.3	492.5	121.4	160.3	135.5	79.1	109.4	177.5	124.9	6,501
1985	686.9	411.0	85.9	3,425	381.0	34.9	148.5	472.8	172.5	166.5	116.2	87.4	75.9	170.5	108.7	6,993
1986	528.0	385.0	70.1	1,707	321.0	38.6	148.8	439.4	154.1	145.5	118.2	78.3	72.8	161.5	117.0	6,005
1987	540.1	410.0	61.4	1,945	296.0	33.9	144.0	460.2	154.0	162.1	104.4	69.2	79.4	184.7	131.5	6,156
1988 ²	621.3	419.0	71.3	2,627	242.0	29.4	134.8	358.9	159.0	184.4	85.8	69.5	68.8	213.7	123.6	6,724
1989 ¹	664.9	462.0	78.1	2,776	242.0	31.2	127.7	445.2	155.5	190.0	71.0	74.3	74.8	205.1	134.5	7,117

¹ Estimated. ² Preliminary. ³ Farm Sales-weight is about 10% above dry weight which is normally reported in trade statistics. Source: Foreign Agricultural Service, U.S.D.A.

T.694

TOBACCO

Production and Consumption of Tobacco Products in the United States

Year	Production										Consumption ³ Per Capita ⁴				
	Chewing Tobacco				Cigarettes		Smoking Tobacco		Cigars ²		Cigarettes		Smoking Tobacco		Total Pdt.'s
	Plug	Twist	Loose-leaf	Total	Billion	Cigars ²	Million Lbs.	Snuff	Number	Number	Number	Number	Pounds	Chewing Tobacco	
1981	17.9	1.8	70.3	90.0	736.5	3.43	30.3	42.4	48.9	3,836	.81	6.52	.46	1.13	7.59
1982	15.7	1.7	73.0	90.4	694.2	3.17	28.3	43.8	45.2	3,739	.74	6.45	.42	1.09	7.46
1983	14.1	1.7	71.0	86.8	667.0	3.14	28.0	46.7	43.8	3,488	.72	6.19	.40	1.05	7.19
1984	12.7	1.7	74.4	88.8	668.8	3.13	24.5	49.4	41.9	3,446	.69	5.89	.35	1.05	6.85
1985	11.3	1.5	74.0	86.8	665.3	2.83	22.1	48.7	37.9	3,370	.62	5.90	.32	1.01	6.81
1986	10.4	1.4	69.6	81.4	658.0	2.93	19.4	47.5	35.8	3,274	.59	5.72	.29	.93	6.56
1987	9.9	1.4	67.3	78.7	689.4	2.13	18.0	46.2	31.7	3,197	.52	5.50	.27	.89	6.30
1988 ¹	8.9	1.4	65.6	75.9	694.5	1.98	17.8	48.6	29.1	3,096	.47	5.38	.23	.86	6.14
1989 ⁵	8.4	1.3	65.7	75.4	685.0	1.90	16.5	49.5	28.3	2,936	.46	5.11	.21	.82	5.85

¹ Preliminary. ² Large cigars & cigarillos. ³ Consumption of tax-paid tobacco products; Represents unstemmed equivalent of tobacco used in the manufacture of these products. ⁴ 18 years old & over. ⁵ Estimate.
Sources: Bureau of the Census; Internal Revenue Service

T.695

Production of Tobacco in the United States In Millions of Pounds

Year	Conn.	Florida	Georgia	Indiana	Kentucky	Maryland	Massachusetts	North Car.	Ohio	Pa.	South Car.	Tenn.	Virginia	Wisconsin	W. Virg.
1981	5.6	22.8	121.0	18.8	509.6	33.0	2.0	795.9	22.9	27.3	149.6	161.5	157.8	26.4	2.4
1982	4.2	21.0	105.6	20.2	589.4	37.5	.9	700.7	31.9	25.9	124.2	178.2	125.4	20.1	3.6
1983	3.4	17.6	96.4	13.0	324.6	29.7	.8	546.9	17.7	22.0	112.9	118.2	99.1	16.7	3.8
1984	2.8	17.9	85.5	18.8	530.1	30.4	.8	590.0	26.5	22.4	105.5	154.6	115.9	16.4	4.5
1985	3.3	16.3	82.1	14.6	428.4	26.6	.8	556.5	16.9	21.9	98.9	127.4	91.1	18.0	3.4
1986	3.1	13.3	67.9	12.1	314.9	21.1	.6	444.8	13.6	21.8	75.5	82.8	73.5	11.9	2.6
1987	2.7	13.8	72.2	11.1	304.8	13.3	.7	466.6	12.0	20.7	94.1	87.3	76.9	8.4	2.6
1988	3.0	17.2	85.9	10.9	355.0	12.0	.8	552.6	14.5	18.2	100.1	93.1	92.2	7.1	2.7
1989 ¹	2.8	18.2	88.0	13.2	407.6	11.5	.7	562.2	17.1	17.9	110.0	98.1	101.3	9.4	2.7

¹ Preliminary, December estimate. Source: Crop Reporting Board, U.S.D.A.

T.696

Salient Statistics of Tobacco in the United States

Year	Acres Harvested 1,000 Acres	Yield Per Acres Lbs.	Production Million Lbs.	Farm Price ¢ Lb.	Farm Value Mil. \$	Tobacco (July-June)		U.S. Exports of Cigars & Cigarettes		U.S. Exports of Chewing Tobacco & Snuff		Stocks of Leaf Tobacco ⁴			
						Exports ²	Imports ³	Cigarettes	Cigars	Chewing Tobacco & Snuff	Smoking Tobacco	Jan. 1	April 1	July 1	Oct. 1
						— Mil. Lbs. —	— Mil. Lbs. —	Millions	Millions	Metric Tons	Metric Tons	All Types Billion Pounds			
1981	976.0	2,113	2,064	170.6	3,520	584.9	384.9	82,582	181	191	6,103	4,850	4,617	4,285	4,699
1982	912.7	2,185	1,994	176.4	3,519	553.4	434.0	73,585	181	887	9,105	5,080	4,909	4,675	5,034
1983	789.2	1,811	1,429	174.6	2,496	526.5	515.9	60,698	130	1,073	10,345	5,367	5,288	4,900	5,209
1984	791.7	2,183	1,728	180.6	3,121	519.8	425.1	56,517	104	1,162	15,036	5,357	5,210	4,987	5,186
1985	688.0	2,196	1,511	164.5	2,486	541.6	449.1	58,900	59	525	19,156	5,434	5,247	4,997	5,150
1986	581.9	1,998	1,163	152.2	1,771	533.6	487.1	63,900	62	616	41,823	5,293	5,158	4,848	4,898
1987 ¹	587.1	2,028	1,191	157.1	1,871	500.0	480.3	100,200	145	650	43,332	4,979	4,775	4,436	4,454
1988 ¹	634.1	2,160	1,370	164.6	2,255	476.7	394.6	118,500	87	859	43,853	4,480	4,185	3,799	3,925
1989 ¹	696.5	2,105	1,466	166.5	2,441	482.6	365.0	130,000	25			4,020	3,825	3,514	3,637

¹ Preliminary. ² Domestic. ³ For consumption. ⁴ Owned by dealer & mfrs., converted to a farm-sales weight equivalent. ⁵ In packages & in bulk & other. Source: Agricultural Marketing Service, U.S.D.A.

T.700

Tobacco Production in the U.S., by Types In Million Pounds (Farm-Sales Weight)

Types	11-14	31	32	21	22	23	35-36	37	41	42-44	51-52	54	55	61
1981	1,170	730	46.4	5.2	— 32.4 —	15.7	.7	27.3	2.4	3.5	— 26.4 —	—	—	4.1
1982	1,006	822	42.0	5.5	— 47.7 —	19.9	.7	21.4	3.5	3.5	— 20.1 —	—	—	1.6
1983	821.3	481.4	37.4	4.6	24.3	8.2	14.3	.4	14.2	1.9	2.5	9.2	7.5	1.7
1984	864.6	712.2	38.1	6.1	37.6	12.9	19.0	.6	14.6	2.2	1.9	8.2	8.2	1.7
1985	800.3	573.3	32.9	4.5	34.5	11.4	15.2	.2	15.6	1.7	2.1	9.6	8.4	2.0
1986	644.6	407.9	27.8	3.5	26.6	11.2	10.9	.2	15.2	.5	2.0	5.5	6.4	1.7
1987	690.9	419.4	20.7	2.6	17.5	7.5	6.8	.1	13.3	.1	1.8	5.7	2.7	1.6
1988	813.2	477.2	18.4	2.9	19.8	8.0	7.4	.1	11.7	—	1.6	5.1	2.0	2.1
1989 ¹	839.0	544.2	18.7	2.7	21.4	8.0	8.3	.1	10.7	—	1.4	6.3	3.1	2.0

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.701

U.S. Exports of Unmanufactured Tobacco In Millions of Pounds (Declared Weight)

Year	Australia	Belg.-Luxem.	Denmark	Egypt	France	W. Germany	Thailand	Ireland	Japan	Netherlands	Norway	Italy	Sweden	Switzerland	United Kingdom	Total U.S. Exports
1980	13.4	7.9	17.5	17.4	4.5	100.7	22.6	3.6	82.1	44.9	6.8	30.7	15.4	20.1	32.5	598.7
1981	12.6	9.5	11.1	16.1	6.1	83.2	18.4	3.9	117.0	28.6	4.2	26.5	9.9	22.2	39.4	584.5
1982	10.1	15.2	16.8	22.0	5.3	68.2	27.7	4.7	110.3	25.1	3.6	28.1	8.7	26.7	30.7	572.0
1983	9.7	9.6	20.2	21.6	7.3	58.0	9.1	3.2	114.1	28.4	5.7	32.2	12.4	16.8	27.8	524.4
1984	8.2	9.4	19.8	37.4	5.1	66.0	14.6	8.0	92.1	22.3	4.7	31.3	11.5	25.3	31.8	542.7
1985	7.3	11.5	16.2	41.2	9.9	76.7	17.8	7.3	102.0	20.9	3.3	28.7	15.8	23.9	18.4	548.9
1986	11.7	10.1	14.5	46.5	8.4	82.7	13.0	3.4	83.2	31.2	4.3	22.5	10.2	11.5	21.8	477.5
1987	8.5	8.2	15.6	11.0	6.7	69.3	7.5	1.2	105.4	32.1	3.3	22.4	8.0	12.6	16.7	430.0
1988 ¹	9.0	9.7	16.4	15.7	5.7	87.2	13.5	2.0	70.4	41.0	3.7	32.4	12.0	15.5	19.6	481.8
1989 ²	7.5	10.0	14.0	8.0	5.6	80.0	15.0	1.8	100.0	39.0	3.9	27.5	10.5	10.0	17.0	475.0

¹ Preliminary. ² Estimate. Source: Bureau of the Census

T.702

U.S. Salient Statistics for Flue-Cured Tobacco (Types 11-14)

Crop Year	Acres Harvested 1,000	Yield Per Acre 100 Lbs.	Marketings	Stocks, July 1	Total Supply Millions of Pounds	Exports	Dom. Disappearance	Total Disappearance	Farm Price ¢ Lb.	Crop Value Mil. \$	Parity Price ² ¢ Lb.	Price Support Level	Placed Under Gov't Loan	Under Loan July 1
1980	555.1	19.6	1,086	1,965	3,052	509	530	1,039	144.5	1,569	222.0	141.5	137.2	554.4
1981	540.6	21.6	1,144	2,013	3,157	523	489	1,012	166.4	1,947	243.0	158.7	105.9	595.8
1982	472.3	21.3	994	2,145	3,139	456	479	935	178.5	1,774	254.0	169.9	259.9	518.7
1983-4	409.8	20.0	855	2,205	3,060	453	442	894	177.9	1,521	267.0	169.9	194.8	688.4
1984-5	392.0	22.1	850	2,165	3,015	481	454	935	181.1	1,539	284.0	169.9	158.6	797.5
1985-6	357.1	22.4	789	2,080	2,870	435	477	912	171.9	1,376	289.0	169.9	131.6	833.1
1986-7	308.3	21.0	667	1,958	2,625	393	480	873	152.7	1,019	288.0	143.8	55.2	790.4
1987-8	324.6	21.3	683	1,752	2,435	385	537	922	158.7	1,084	294.0	143.5	24.8	647.8
1988-9 ¹	366.4	22.2	813	1,513	2,309	363	522	885	161.3	1,311		144.2	15.2	466.1
1989-90 ³	396.0	21.2	839	1,424	2,262	370	520	890	167.5	1,405		146.8		338.0

¹ Preliminary. ² As of applicable date when support level was computed. ³ Estimate. Source: Agricultural Marketing Service, U.S.D.A. T.697

U.S. Salient Statistics for Burley Tobacco (Type 31)

Crop Year	Acres Harvested 1,000	Yield Per Acre 100 Lbs.	Marketings	Stocks, Oct. 1	Total Supply Millions of Pounds	Exports	Dom. Disappearance	Total Disappearance	Farm Price ¢ Lb.	Crop Value Mil. \$	Parity Price ² ¢ Lb.	Support Level	Under Gov't Loan	Under Loan on Oct. 1
1980	276.6	20.3	558	1,026	1,583	106	478	583	165.9	930	236.0	145.9	.0	66.3
1981	331.2	22.0	726	1,000	1,726	141	464	605	180.7	1,318	253.0	163.6	.8	0
1982	346.2	23.7	777	1,121	1,898	135	444	579	181.0	1,406	266.0	175.1	269.2	.7
1983-4	292.6	16.5	527	1,319	1,845	112	389	501	177.3	934	280.0	175.1	255.6	226.1
1984-5	315.7	22.6	674	1,344	2,018	154	403	556	187.6	1,264	294.0	175.1	201.0	377.2
1985-6	255.1	22.5	542	1,462	2,004	151	425	576	159.7	866	297.0	148.8	82.7	548.9
1986-7	210.7	19.4	420	1,428	1,848	165	402	567	156.5	657	297.0	148.8	38.8	525.7
1987-8	215.8	19.4	428	1,281	1,709	157	478	635	156.3	669	307.0	148.8	90.0	329.7
1988-9 ¹	226.3	21.1	477	1,074	1,542	164	413	577	161.0	768		150.0	14.6	209.4
1989-90 ³	255.3	21.3	544	965	1,508	165	430	595	165.0	898		153.2		130.0

¹ Preliminary. ² As of applicable date when support level was computed. ³ Estimate. Source: Agricultural Marketing Service, U.S.D.A. T.698Exports¹ of Tobacco from the United States In Thousands of Metric Tons³

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	28.0	52.5	80.1	54.6	53.2	43.0	40.9	28.3	32.3	47.6	64.4	66.6	591.5
1981	44.8	32.8	53.7	49.4	44.6	40.1	31.3	27.4	45.5	63.2	86.8	55.6	575.3
1982	31.7	39.4	62.1	41.8	54.0	37.2	23.9	30.2	24.8	74.5	92.2	50.5	562.3
1983	24.2	38.3	46.0	44.0	33.6	32.7	28.6	36.0	26.4	51.7	87.9	60.3	509.8
1984	42.0	40.2	43.3	32.4	26.5	28.9	14.8	18.4	39.1	68.0	97.9	77.1	528.5
1985	34.6	48.5	48.0	54.1	15.8	14.2	20.4	39.2	41.1	48.1	85.4	89.3	538.6
1986	21.6	31.9	48.8	45.9	28.4	22.4	16.4	23.7	22.1	32.9	66.3	106.1	466.6
1987	59.6	25.4	43.1	41.4	32.3	20.7	19.4	15.7	21.6	28.1	53.7	64.8	425.9
1988 ³	32.7	17.1	21.3	25.7	15.8	10.3	11.8	11.2	14.3	14.8	20.9	20.6	216.5
1989 ²	25.9	25.4	22.2	19.4	14.7	11.7	7.0	10.7	17.7	18.0			

¹ Represents unmanufactured tobacco, including stems, trimmings and scrap. ² Preliminary. ³ Prior to 1988, the data is in millions of pounds. Source: Department of Commerce T.699

Tung Oil

The average price of tung oil, ex-tank, Rotterdam, during 1988/89 (Oct.-Sept.) was \$866/tonne. At 1989's end, prices were slightly higher, averaging \$875 in October-November. These levels were well below prices of above \$1,000/tonne in 1987/88.

The U.S. imports all of its tung oil requirements. Imports totaled 5,328 tonnes during 1988/1989, compared with 6,454 a year earlier, according to the Bureau of the Census. For the calendar year

1988, imports amounted to 6,407 tonnes, which was up from 5,894 in 1987.

China is the largest producer and exporter of tung oil. Chinese shipments average about 25,000 to 30,000 tonnes a year. Major importers include Japan, Hong Kong, the Soviet Union, and the U.S.

Tung oil, produced from tung nuts, is used as an industrial lubricant and drying oil.

Supply and Distribution of Tung Oil in the United States In Thousands of Pounds

Year	Stocks Jan. 1	Production	Imports	Exports ²	Total Supply	Apparent Disappearance	Factory Consumption (Crop Yr. Beg. Oct.)				Oil Acquired By CCC
							Total	Paint & Varnish	Resins & Plastics	Other In- edible Prods	
1979	1,200		20,038				15,700	10,400	3,000	2,300	
1980	3,500		16,239				16,600	8,300	3,700	4,600	
1981	2,800		15,033				14,600	5,800	3,200	5,600	
1982 ¹	2,200		14,398				12,700	5,300	2,800	4,000	
1983 ¹	2,217		13,635				19,700	5,600	3,400	10,800	
1984 ³	3,137		13,929				12,400	5,100	4,500	2,900	
1985 ³	2,546		15,298				11,600	5,200	4,300		
1986 ³	3,514		12,291				12,200	3,700	6,100		
1987 ³	4,516		12,996				14,800	3,600	8,800		

¹ Preliminary. ² Also including re-exports. ³ Estimate. Source: Economic Research Service, U.S.D.A.

T.703

U.S. Consumption of Tung Oil in Inedible Products In Thousands of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	1,110	1,079	887	1,039	818	1,197	1,303	1,096	1,105	1,068	911	891	12,504
1986 ¹	884	964	959	989	923	1,093	976	895	949	1,091	854	734	11,311
1987 ¹	875	940	861	1,054	1,265	1,134	978	1,055	1,146	1,232	1,260	1,847	13,647
1988 ¹	2,169	1,143	988	1,117	1,072	878	713	1,148	1,276	2,751	2,509	4,317	20,081
1989 ¹	4,106	3,360	3,074	2,717	2,313	2,508	2,511	2,512	2,541	2,862			

¹ Preliminary. Source: Bureau of the Census

U.S. Stocks of Tung Oil at Factories & Warehouses In Thousands of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1984	3,137	2,867	3,042	2,634	2,609	2,102	1,815	1,802	1,476	1,192	2,113	2,029
1985 ¹	2,546	2,589	2,353	1,642	1,707	1,599	1,564	2,163	2,272	1,526	1,798	2,617
1986 ¹	3,514	3,347	2,651	3,036	2,847	2,255	2,691	2,742	2,151	2,212	3,350	4,123
1987 ¹	4,516	3,937	2,830	3,582	2,996	865	2,768	3,699	3,779	3,325	3,625	3,768
1988 ¹	3,224	4,501	5,296	4,374	4,304	3,500	3,913	3,797	3,422	4,999	3,821	3,498
1989 ¹	3,739	3,012	3,867	3,526	3,225	3,216	4,836	3,860	2,640	5,450	4,669	

¹ Preliminary. Source: Bureau of the Census

T.703A

Average Price of Tung Oil¹ (Imported-Drums) F.O.B. New York In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	69.6	68.0	64.0	60.3	62.9	64.5	64.0	64.0	62.1	60.3	58.5	58.5	63.1
1982	61.4	69.5	68.2	66.5	68.3	69.4	66.9	63.5	60.6	60.5	60.5	60.5	64.6
1983	60.5	57.0	57.0	61.9	86.4	102.5	102.5	107.3	133.4	136.0	138.0	138.0	98.4
1984	138.0	138.0	138.0	138.0	138.0	134.0	134.0	117.0	106.9	89.0	81.0	81.0	119.0
1985	81.0	81.0	81.0	81.0	81.0	N.A.	52.0	53.0	55.0	55.0	55.0	52.5	66.1
1986	52.0	46.5	46.1	44.5	43.5	40.1	36.5	34.8	33.0	32.0	32.0	32.0	31.2
1987	33.20	44.50	50.50	59.50	57.25	56.38	56.50	56.50	56.50	56.50	56.50	56.50	53.36
1988	57.63	58.00	58.00	56.88	53.50	52.00	51.00	49.80	49.00	48.25	44.75	44.00	51.65
1989	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00

¹ Carlots, imported, f.o.b. New York. Source: Economic Research Service, U.S.D.A.

T.704

Tungsten

Only two U.S. tungsten mines operated during 1989. One ran on a limited scale during the first half of the year. The other was operating all year at a fraction of its capacity to provide supplemental ore to its owner's nearby ammonium paratungstate plant. World mine production of tungsten fell to 42,800 tonnes from 43,236 tonnes in 1988. Many mines in free-market economies were closed because of low world prices.

China produced an estimated 21,000 tonnes of tungsten in 1989, unchanged from 1988 output. In August, the European Commission ruled that China

was dumping tungsten-containing materials on the world market and proposed imposing duties of 30 percent to 40 percent on EC imports from China. U.S. and Canadian tungsten producers also have accused China of dumping.

U.S. apparent consumption of tungsten fell to 10,085 tonnes from 11,065 tonnes in 1988. Demand for cemented tungsten carbides in cutting tools and related applications softened late in the year. The government sold 339 tonnes of tungsten from its stockpile during the first nine months of 1989 as part of its ferroalloy upgrading program.

World Concentrate Production of Tungsten In Metric Tons of Contained Tungsten³

Year	Japan	Argentina	Australia	Bolivia	Brazil	Burma	China	Rep. of Korea	Canada	Portugal	Spain	Thailand	USSR	United States	World Total
1986	579	25	1,600	1,095	875	715	15,000	2,455	1,416	1,637	495	475	9,200	780	42,656
1987 ¹	170	25	1,150	500	672	425	18,000	2,500	—	1,500	100	660	9,200	34	40,232
1988 ²			1,261	950	700	400	21,000	2,029	—	1,400		651	9,200		43,236
1989 ²			1,400	1,000	500	300	21,000	2,000	—	1,400		700	9,200		42,800

¹ Preliminary. ² Estimate. ³ Conversion Factors: WO₃ to W, multiply by 0.7931; 60% WO₃ to W, multiply by 0.4758.
Source: Bureau of Mines

T.706

Salient Statistics of Tungsten in the U.S. In Metric Tons of Contained Tungsten

Year	Net Import Reliance as a % of Apparent Consumption	Production ¹	Shipments from Mines ¹	Total Consumption	Consumption of Tungsten Products by End Uses								Stocks at End of Year (Concentrate)		
					Tool	Steel Stainless & Heat Assisting	Alloy Steel ³	Super-alloys	Cutting & Wear Resistant Materials	Pdt's. Made from Metal Powder	Miscellaneous	Chemicals & Ceramic	Exports	Consumers & Dealers	Producers ¹
1986	70	780	817	4,804	303	73	24	176	4,431	1,000	1,669	28	34	502	21
1987 ²	79	34	34	5,506	306	68	28	212	3,911	N.A.	2,662	41	2	329	21
1988 ⁴	76			7,832					4,200		2,500			500	20
1989 ⁴	73			7,700										700	

¹ Primary concentrates. ² Preliminary. ³ Other than tool. ⁴ Estimate. Source: Bureau of Mines

T.707

U.S. Imports¹ of Tungsten Ores & Concentrates and Ferrotungsten In Metric Tons⁴ (Tungsten Content)

Year	Tungsten Ores and Concentrates Imported (For Consumption)											Ferrotungsten Imported				
	Australia	Bolivia	Brazil	Canada	South Korea	Mexico	Portugal	Spain	Thailand	Peru	Total 1,000 Pounds	Value Mil. \$	Austria	Portugal	China	Total 1,000 Lbs.
1986	192	609	8	61	—	173	202	—	264	436	2,522	13.8	85	14	75	185
1987 ²	65	750	—	312	—	227	422	16	418	362	4,414	24.0	40	15	220	300
1988 ⁴											8,045					
1989 ⁴											7,600					

¹ Imports for consumption. ² Preliminary. ³ Estimate. Source: Bureau of Mines

T.708

Tungsten Prices In U.S. Dollars

Year	U.S. ¹ Markets		— Reported Value, F.O.B. U.S. Mine ² —			Year	U.S. ¹ Markets		— Reported Value, F.O.B. U.S. Mine ² —		
	Total (Mil. \$)	Avg. per Unit of WO ₃	Avg. per Kilogram of Tungsten	Total (Mil. \$)	Avg. per Unit of WO ₃		Avg. per Kilogram of Tungsten				
1982	106.00	107.00	22.1	111.06	14.00	1986	46.00	53.00	5.8	56.04	7.07
1983	85.00	81.00	10.5	82.17	10.36	1987 ³	50.00	53.00	.2	50.34	6.35
1984	85.00	87.00	13.4	90.63	11.43	1988 ⁴	59.00	58.00			
1985	68.00	71.00	9.1	73.77	9.30	1989 ⁴	56.00	61.00			

¹ Conc., Stu WO₃. Average (a short ton unit [stu] of tungsten trioxide [WO₃] contains 15,862 pounds of tungsten). ² Values apply to finished concentrate & are in some instances f.o.b. custom mill. ³ Preliminary. ⁴ Estimate. Source: Bureau of Mines

T.709

Turkeys

Turkeys raised in the U.S. totaled 260 million head in 1990, about 7 percent higher than the year-earlier level. The leading turkey producing state was North Carolina, which raised 52.2 million head. Minnesota was second with 43.1 million head, followed by California, Arkansas, Missouri, and Virginia. Together, these six states accounted for over two-thirds of the turkeys raised in the U.S. Higher U.S. production was attributed to strong prices early in the year and an outlook for lower feed costs in the fourth quarter. The U.S. accounted for about 55 percent of world output. Other major producers included the EC, the USSR, and Canada.

Per capita turkey consumption in 1989 was around 16.8 pounds, up from 16 pounds in 1988. By comparison, per capita consumption in 1950 was only 4 pounds. Demand for further-processed turkey (cut-up birds or processed meats) has been growing. It is more convenient for consumers to buy turkey meat today than in past years, because of the availability of smaller portions and of turkey parts. This trend has created a more year-round demand for turkeys and parts. Whole birds still accounted for almost 40 percent of consumption, and the fourth-quarter holiday period remained the primary turkey consumption season.

U.S. turkey exports in 1989 were an estimated 42 million pounds, down about 18 percent from the year-earlier level. The sharp drop was due to higher prices for U.S. turkeys and trade restraints

in some major markets, including West Germany and Egypt. The largest U.S. export markets were Mexico and Canada. Exports to Canada were significantly higher than in 1988, as that country showed little growth in production and raised its import quota under the U.S.-Canadian Free Trade Agreement. Parts made up about 80 percent of U.S. turkey exports in 1989.

Eastern wholesale hen prices averaged 66.7 cents/lb. in 1989, up from 66.1 cents in 1988. Retail price reductions during the Thanksgiving holiday resulted in good retail movement of turkeys, and gave some strength to wholesale prices late in the year. Net returns were expected to be slightly negative for producers in 1989, however. Lower feed costs in 1990 were likely to reduce producer costs, but higher production was expected to result in negative returns early in the year.

Wholesale turkey prices were projected to drop in 1990, particularly in the first quarter. Lower retail prices and a resulting increase in per capita consumption, possibly to over 17 pounds, were anticipated. Softer prices were expected to enhance competitiveness overseas, while some trade issues were likely to be resolved. Turkey exports were forecast to increase by about 14 percent in 1990.

U.S. ending stocks of turkey in 1989 were estimated at 225 million pounds, compared with 250 million a year earlier, due to a sharp drawdown of whole turkey stocks over the Thanksgiving period.

Salient Statistics of Turkeys in the U.S.

Year	Turkey-Feed Price Ratio ³ Lbs.	(All Breeds) Poults Placed —In Millions—	Number Raised	—(Liveweight)— Produced Million Lbs.	Farm Price ¢ Lb.	Value of Production Million \$	Production	Ready-to-Cook Basis				In Cents Per Lb.			
								Commercial Storage Jan. 1	Exports & Shipments	Consumption		Production Costs Live-Weight	Total Costs	Wholesale Ready-to-Cook 3-Regions Composite Price	
										Military	Civilian				
								Million Pounds			Per Capita Lb.	Feed	Total	Total Costs	
1977	3.8	148.4	136.4	2,563	35.5	910	2,023	203	56	11	1,992	9.3	22.6	31.6	56.2
1978	4.6	157.5	138.9	2,655	43.6	1,157	2,098	168	57	15	2,019	9.2	22.1	31.7	68.8
1979	4.2	180.0	156.5	2,958	41.1	1,214	2,343	175	57	19	2,204	9.9	25.3	35.8	67.0
1980	3.6	188.7	164.9	3,077	41.3	1,272	2,432	240	81	16	2,370	10.5	26.1	37.1	66.0
1981	3.1	187.3	159.9	3,264	38.2	1,248	2,577	198	68	15	2,450	10.7	30.2	41.2	64.0
1982	3.3	184.2	164.5	3,175	39.5	1,255	2,522	238	56	12	2,489	10.8	24.5	36.3	63.6
1983	3.0	182.1	170.7	3,336	38.0	1,269	2,649	204	54	13	2,609	11.2	26.6	39.8	63.5
1984	3.9	184.2	171.2	3,386	48.9	1,655	2,685	162	33	13	2,676	11.4	29.0	42.0	72.0
1985	4.5	197.8	185.3	3,702	49.1	1,819	2,942	125	34	13	2,870	12.1	21.4	35.1	77.3
1986 ¹	4.1	225.4	207.2	4,142	47.1	1,948	3,271	150	31	10	3,212	13.3	21.1	34.8	75.2
1987 ²	3.9	264.2	240.4	4,894	34.3	1,703	3,832	178	37	15	3,686	15.1	19.4	33.1	57.0
1988 ²	3.0		242.4	5,069	37.3	1,955	3,968	266	51		4,101	16.0	24.7	38.2	61.8
1989 ²			260.3	5,200	40.2		4,216	250	42			16.9			

¹ Preliminary. ² Estimate. ³ Lbs. of feed = in value to 1 lb. of turkey live weight. Source: Economic Research Service, U.S.D.A.

T.710

Turkey Per Capita Consumption in the U.S. by Quarters In Pounds

Year	First	Second	Third	Fourth	Total	Year	First	Second	Third	Fourth	Total
1981	1.6	1.9	2.5	4.6	10.7	1986 ¹	2.4	2.5	3.2	5.3	13.4
1982	1.8	2.1	2.6	4.3	10.7	1987 ¹	2.6	3.0	3.5	6.0	15.1
1983	2.1	2.2	2.5	4.4	11.2	1988 ¹	3.1	3.5	3.9	5.5	16.0
1984	2.0	2.2	2.7	4.5	11.4	1989 ¹	3.2	3.4	4.3		
1985	2.1	2.3	2.9	4.9	12.1	1990					

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.711

TURKEYS

U.S. Basis of Turkey-Feed Price Ratio In Pounds¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1985	4.7	3.8	3.7	3.7	3.7	3.9	4.2	4.5	5.0	5.5	5.5	5.5	4.5
1986	3.4	3.4	3.5	3.5	3.8	4.3	4.5	4.6	4.7	4.9	4.8	4.0	4.1
1987	3.3	3.4	3.6	3.5	3.3	3.4	3.1	3.0	2.9	2.8	3.1	3.6	3.9
1988 ²	2.8	2.6	2.7	2.7	2.8	3.0	3.0	3.1	3.4	3.6	3.6	2.8	3.0
1989 ²	2.7	2.9	3.1	3.3	3.4	3.5	3.3	3.3	3.0	3.2			

¹ Pounds of feed equal in value to one pound of turkey liveweight. ² Preliminary. Source: Agricultural Statistics Board, U.S.D.A.

Wholesale Price of Turkeys² (Hens, 8-16 lbs.) N.Y. In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.	Yearly Average Price 4-Region Retail	Farm Price ¹
1980	62.3	57.8	56.8	54.1	53.3	55.5	63.3	67.2	74.5	77.0	75.0	67.0	63.6		40.0
1981	59.4	60.7	63.8	61.2	63.5	66.2	66.8	61.8	59.5	56.4	57.3	51.7	60.7	97.7	38.4
1982	53.6	55.8	56.0	55.8	58.8	61.8	64.1	64.1	68.0	69.6	67.2	54.2	60.8	92.6	39.5
1983	53.6	54.9	56.0	54.4	56.6	60.9	58.5	57.6	65.0	65.1	67.0	76.1	60.5	91.7	38.0
1984	72.2	64.7	66.1	67.0	66.8	67.0	68.6	72.4	76.2	82.6	91.5	97.3	74.4	98.7	48.9
1985	74.0	65.6	67.0	64.6	62.6	68.1	72.8	78.4	82.4	90.2	93.1	86.9	75.5	105.2	49.1
1986	60.3	61.7	63.9	64.6	67.1	73.8	77.9	80.5	81.2	83.2	80.7	71.1	72.2	106.6	47.1
1987	55.3	58.5	60.3	58.3	55.3	55.7	56.3	56.1	56.1	54.7	60.7	66.5	57.8	101.2	34.3
1988	52.8	47.1	47.0	46.9	49.3	57.1	70.8	70.5	76.0	79.6	76.0	61.6	61.1	95.7	37.3
1989	59.0	62.2	65.7	68.3	72.1	73.0	66.4	62.6	57.9	67.8	72.5	72.7	66.7	99.4	40.2

¹ Live weight. ² Ready-to-cook. Source: Economic Research Service, U.S.D.A.

T.713

Certified Federally Inspected Turkey Slaughter in the U.S. In Millions of Lbs.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1977	70.5	58.7	80.3	78.9	110.0	176.5	189.6	244.4	238.2	250.3	246.8	148.2	1,892
1978	81.8	59.7	86.3	80.8	129.3	189.5	199.9	248.8	230.9	271.2	248.9	156.3	1,983
1979	99.3	77.2	95.0	112.3	157.3	195.9	219.2	267.7	233.0	297.5	261.9	165.5	2,182
1980	—	378.6	—	—	528.3	—	—	711.6	—	—	713.9	—	2,232
1981	—	398.1	—	—	553.2	—	—	785.2	—	—	772.6	—	2,509
1982	—	410.4	—	—	527.9	—	—	761.5	—	—	759.1	—	2,459
1983	—	462.2	—	—	581.5	—	—	760.3	—	—	759.0	—	2,563
1984	—	432.3	—	—	589.3	—	—	777.2	—	—	775.3	—	2,574
1985	—	482.1	—	—	628.3	—	—	854.6	—	—	834.8	—	2,800
1986	—	174.6	193.6	205.2	236.4	275.8	307.6	299.4	331.4	365.8	307.1	248.2	3,133
1987	215.4	211.9	241.9	255.0	274.2	330.1	358.8	357.4	383.9	411.0	373.5	297.0	3,717
1988 ¹	254.6	266.9	314.0	276.6	331.3	373.2	323.3	377.3	365.8	395.7	371.7	272.8	3,903
1989 ¹	254.1	248.1	301.3	268.8	356.9	388.6	360.4	430.3	385.6	421.2			

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.714

Storage Stocks of Turkeys (Frozen) in the United States In Millions of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1977	203.4	190.3	167.8	142.3	130.3	138.2	201.4	253.6	329.9	409.3	444.5	269.4
1978	167.9	168.2	136.6	113.0	101.1	103.9	152.8	213.6	301.2	373.3	425.4	236.2
1979	175.1	170.7	154.7	135.7	128.0	153.1	200.9	272.5	382.5	432.3	445.5	281.2
1980	240.0	246.8	225.0	208.9	206.6	233.8	286.6	325.8	384.0	398.8	420.2	257.6
1981	198.0	208.3	207.9	220.7	228.7	256.2	327.3	400.8	466.0	532.1	528.1	305.1
1982	238.4	236.9	236.4	232.8	—	—	281.7	—	—	435.8	—	—
1983	203.9	193.8	187.7	185.3	192.3	210.5	255.7	323.5	384.3	432.2	460.1	251.6
1984	161.8	161.5	145.8	144.4	142.2	180.9	226.3	278.2	331.3	390.6	415.4	195.7
1985	125.3	124.1	129.5	131.1	157.0	183.7	243.3	304.7	387.8	444.5	484.1	208.2
1986	150.2	159.2	163.6	150.5	188.9	229.5	297.8	388.1	449.3	511.6	543.2	249.0
1987	178.2	198.1	211.4	226.0	250.8	298.1	381.6	472.7	560.0	618.7	612.9	291.9
1988	282.4	281.8	321.5	339.0	370.7	410.1	456.8	496.2	551.9	572.8	583.3	303.5
1989 ¹	249.7	262.5	263.1	269.2	298.5	355.6	454.6	496.7	574.3	569.3	571.8	258.0
1990 ¹	234.3											

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.712

Uranium

Uranium prices continued to slump in 1989 and fell to a 15-year low. U.S. prices ended 1989 at \$9.00 a pound, which was down from \$11.75 a year earlier and the 1978 peak of \$43.00.

U.S. uranium demand declined in 1989, as users, many of whom held large inventories, drew down their stocks. Users were assured of available supplies from Canada, following the enactment of the U.S.-Canada Free Trade Agreement, which removed import restrictions. Uranium consumption is dependent on the level of nuclear power generation. After the accidents at Three Mile Island and Chernobyl, plans for a number of nuclear power plants were scrapped, and uranium demand has not been as strong as expected earlier.

U.S. production of uranium was estimated at 13.3 million pounds in 1989, compared with 13.5 million in 1988 and 13 million in 1987, by NUXCO, the nuclear fuel trading firm in Colorado. Prices of \$9.00-\$11.00 a pound in 1989 were below cost of production for some U.S. firms. Chevron Resources Co. planned to shut its Morgan Taylor mine in New Mexico, because of the economics of the market. Several U.S. uranium businesses incurred losses in 1989, though others, committed to supplying uranium under contract at higher prices, showed profits. U.S. production comes from thirteen facilities in Utah, Wyoming, New Mexico, Texas,

Louisiana, and Florida.

The U.S. is an importer of uranium, and net imports are over 8 million pounds a year. The major suppliers are Canada and South Africa. The U.S. also exports some uranium to countries in Asia under long-term contracts to provide nuclear fuel and reactors.

World uranium production is about 95 million pounds annually, of which Canada accounts for 32 million. Other producers include South Africa, Australia, Namibia, and France, which each supply 9 million-10 million pounds a year. Production in Canada and France rose slightly in the late 1980s, while output in South Africa and Australia declined.

The Supreme Court ruled that the U.S. government did not have to restrict imported uranium to protect domestic producers. That overturned a decision banning federal officials from enriching foreign uranium.

Uranium is considered essential to the operation of the Navy's nuclear-powered ships and for nuclear weapons. The government maintains stockpiles of finished nuclear material and operates uranium enrichment plants. In 1989, legislation was before Congress to reorganize and privatize the Uranium Enrichment Enterprise, a Department of Energy Program to provide funding to uranium mines to clean tailings.

Free-World Production of Uranium Oxide (U₃O₈) Concentrate In Thousands of Short Tons

Year	Argentina	Australia	Canada	Spain	Namibia	Central Africa	France	Portugal	Niger	Brazil	Sweden	South Africa	United States	World Total
1979	.2	.9	8.9		5.0		3.1		4.7	0		6.2	18.7	49.6
1980	.2	2.0	9.3		5.3		3.4		5.3	0		8.0	21.8	57.2
1981	.2	3.7	10.0		5.2		3.3		5.7	.1		8.0	19.2	57.1
1982	.2	5.7	10.5		4.9		3.7		5.5	.4		7.6	13.4	53.7
1983	.3	4.8	9.8		4.8		4.2		5.2	.4		7.5	10.6	49.3
1984		5.7	14.5		4.8	5.5	4.1					7.5	7.5	50.4
1985		4.3	14.2		4.5	5.3	4.2					6.3	5.7	45.2
1986 ²		5.4	15.3		4.6	5.2	4.3					6.0	7.0	48.4
1987 ²		4.9	16.2		4.6	5.0	4.4					5.2	6.2	47.7
1988 ²		4.7	16.2		4.6	5.1	4.5					5.0	6.8	48.4

¹ Less than 50 tons. ² Preliminary. Source: Bureau of Mines, Dept. of Energy; NUXCO.

T.720

Month-End Uranium (U₃O₈) Transaction Values¹

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	43.10	43.30	43.70	43.60	43.60	43.20	43.30	43.40	43.40	43.60	43.40	43.70
1979	43.60	43.80	43.70	43.40	43.60	43.70	43.70	43.60	43.60	43.60	43.50	42.30
1980	42.00	39.30	38.60	38.40	37.90	37.60	37.30	31.60	30.60	29.00	28.70	27.70
1981	27.20	27.20	27.00	25.70	25.70	24.50	24.40	24.30	23.90	24.10	24.10	24.00
1982	24.00	23.70	23.40	22.60	22.70	21.50	20.30	19.10	17.30	17.00	17.55	18.80
1983	19.35	20.00	21.35	21.40	22.35	22.45	23.50	23.60	23.65	23.65	23.85	23.85
1984	23.05	22.50	19.25	17.90	17.00	16.50	16.60	16.40	16.55	16.05	15.90	15.90
1985	16.20	15.70	15.05	14.90	14.45	14.60	14.75	15.10	15.10	15.75	15.80	16.55
1986	16.55	16.70	16.70	17.10	17.05	17.20	17.50	17.45	17.35	17.25	17.30	17.35
1987	17.35	16.90	16.95	17.00	17.20	17.10	17.30	17.55	18.20	18.05	17.80	17.20
1988	16.85	16.65	16.55	16.45	16.10	15.80	15.45	15.00	14.50	14.40	13.30	12.50

¹ Transaction value is a weighted average price of recent natural uranium sales transactions, based on prices paid in transactions closed within the previous three-month period for which delivery is scheduled within one year of the transaction date; at least 10 transactions; and transactions involving a sum total of at least 2 million pounds of U₃O₈ equivalent. Source: NUXCO.

Vanadium

Vanadium was in a rare bull market during 1989, and prices rose to unprecedented levels of \$11.00 a pound. Producers cited unusually high demand, coupled with a shortage of raw materials, as the major cause of the steep price rise.

However, as is the case in many industries that have large unused capacity, once vanadium prices reached economically attractive levels, idled production capacity was brought back on line. Producers, including South Africa, Canada, and Chile, found that the new price levels more than made up for any additional start-up costs, and there was a rush to produce new material.

Because of its importance to the national defense and the fact that 75 million pounds of the 90 million pounds of total Western vanadium availability come from South African mines, the U.S. government took the unusual step of entering the vanadium industry in 1989.

In August of 1989, the Senate passed legislation that established the \$1.5 billion government-owned U.S. Enrichment Corporation. While the new com-

pany will operate as a private firm, the Treasury Department owns all the stock and will collect the dividends generated by the endeavor.

For the first nine months of 1989, total U.S. consumption of vanadium, by end use, was 7.17 million pounds. The major area of offtake was in the steel industry, where ferrovanadium usage totaled 6.13 million pounds. High-strength, low alloy steel accounted for 2.01 million pounds of ferrovanadium. The U.S. Bureau of Mines does not publish comparable year-earlier figures.

U.S. imports of ferrovanadium in the first nine months of 1989 totaled 869,620 pounds for a value of \$11.6 million, and came mainly from Canada and Austria. About 500,000 pounds of vanadium pentoxide, worth \$4.6 million, were imported from South Africa.

At present, there is no acceptable substitute for vanadium in aerospace titanium alloys. Platinum and nickel can replace vanadium compounds in some chemical processes.

World Production of Vanadium from Ores and Concentrates In Short Tons (of Contained Vanadium)

Year	USSR	Chile	China	Finland	Australia	Norway	South West Africa ¹	South Africa	United States ¹	Other ⁴	World Total
1978	10,000	760	2,200	3,092	—	510	485	12,400	4,272	1,697	35,416
1979	10,000	510	4,000	3,051	—	630	—	13,600	5,520	2,337	39,648
1980	10,500	300	5,000	3,135	—	540	—	16,428	4,806	2,230	42,939
1981	10,500	140	5,000	3,431	77	380	—	13,908	5,126	2,587	41,149
1982	10,500	—	5,000	3,470	25	120	—	12,911	4,098	2,267	38,391
1983	10,500	—	5,000	3,516	—	—	—	9,737	2,171	1,671	32,595
1984	10,500	—	5,000	3,376	—	—	—	13,798	1,617	2,471	36,762
1985	10,500	—	5,000	2,350	—	—	—	15,449	N.A.	3,535	36,834
1986	10,600	—	5,000	—	—	—	—	16,930	N.A.	3,259	35,789
1987 ²	10,600	—	5,000	—	—	—	—	18,700	N.A.	3,433	27,733
1988 ³	10,600	—	5,000	—	—	—	—	18,050	—	—	33,650
1989 ³	11,000	—	6,000	—	—	—	—	18,000	—	—	35,000

¹ Recoverable vanadium. ² Preliminary. ³ Estimate. ⁴ Production from petroleum residues, ashes, & spent catalysts. Mainly in Japan & the United States. Source: Bureau of Mines T.722

Salient Statistics of Vanadium in the United States In Short Tons of Contained Vanadium

Year	Vanadium in Ores & Concentrates		Prod. of Vanad. Pentoxide (V ₂ O ₅)	Consumer Stocks Dec. 31	Vanadium Consumed by Uses ²								\$ Per Lb. Van. Pentoxide ³	General Imports ⁵	Exports	
	Mine Production	Recoverable Vanadium			Tool Steel	Cast Irons	High Strength Low Alloy	Non-ferrous Alloys	Chemicals	Carbide	Full Alloy	Total			Ore & Concentrates ⁴	Ferrovanadium (Gross Weight)
1978	4,446	1,309														
1979	5,841	880														
1980	5,832	4,806	9,829	879	653	54	1,986	728	59	1,114	1,420	6,139	3.54	1,786	960	803
1981	5,852	5,126	11,367	683	584	42	2,123	852	56	1,278	1,832	6,863	3.52	2,435	463	435
1982	4,093	4,098	8,689	326	273	20	1,148	461	29	698	811	3,496	3.50	1,112	2,000	326
1983	N.A.	2,171	4,344	374	426	10	966	505	19	577	716	3,277	3.50	58	2,802	775
1984	N.A.	1,617	4,678	449	610	18	1,636	905	22	683	816	4,761	3.50	633	4,029	469
1985	N.A.	N.A.	N.A.	360	522	22	1,383	788	14	1,135	944	4,883	3.50	303	1,852	454
1986	N.A.	N.A.	N.A.	314	510	24	1,136	652	11	1,026	856	4,308	3.50	2,013	1,973	513
1987 ¹	N.A.	N.A.	N.A.	372	465	25	1,336	684	12	1,197	816	4,653	3.50	2,264	1,940	436
1988 ⁶													6.50	2,233	548	510
1989 ⁶													4.50	2,289	560	475

¹ Preliminary. ² Represent about 90% of the total consumption. ³ Dealer export. ⁴ Also includes vanadium oxide & other compounds. ⁵ Ores, slags, residues. ⁶ Estimate. Source: Bureau of Mines T.723

Wheat

World wheat production in 1989/90 was projected by the USDA at 536 million tonnes, 7 percent more than the previous season. The U.S. crop recovered somewhat from 1988's drought, though conditions in many areas remained very dry. The Canadian crop rebounded to 24 million tonnes, a 50 percent increase from the year before. China was the largest producer with a crop of 91 million tonnes, up 5 percent. The Soviet Union's output of 90 million tonnes was 7 percent above 1988/89.

The EC crop rose by 6 percent and totaled 79 million tonnes. Eastern Europe's output declined 4 percent to 43 million tonnes. India's production gained 17 percent and was 54 million tonnes. Argentina's crop of 10.5 million tonnes compared with 8.2 million in 1988/89, while Australia's output of 14 million tonnes was unchanged.

Global use of wheat in 1988/89 was put at 538 million tonnes, up 1 percent. The USDA forecast world exports at 108 million tonnes, down from 110 million. The U.S. share of the export market was 33 percent, compared to 35 percent the previous season. The EC's share was unchanged at 30 percent. Canadian exports were projected at 17 million tonnes, up from 12.4 million. Argentine exports rose to an estimated 6 million tonnes from 4 million. Australia's projected exports of 10.5 million tonnes were 7 percent less than in 1988/89.

China remained a major importer of wheat with purchases forecast at 14 million tonnes, down from 15.5 million. The USSR was expected to import 14 million tonnes, versus 15.5 million in 1988/89.

The increase in worldwide use meant that global ending stocks would decline. For 1989/90, ending stocks of wheat were forecast at 116.3 million tonnes, below 117.9 million the previous season.

U.S. wheat production in 1989 was estimated at 2.04 billion bushels, or 13 percent more than the previous year. Harvested area was 62.1 million acres, up from nearly 60 million. However, the national average yield of 32.8 bushels per acre was below 34 bushels in 1988.

Production of hard red winter wheat, grown in the Plains, was 711 million bushels, down 19 percent. The hard red crop was reduced by dryness, particularly in Kansas and Nebraska. The soft red winter crop, produced in the Corn Belt, Delta, and Southeast, was 548 million bushels, 16 percent above 1988. While soft red yields were mostly good, heavy rains pared yields in Ohio and the Delta.

The hard red spring wheat crop, grown in the upper Plains, was 433 million bushels, well above 1988's drought-damaged output of 181 million.

North Dakota's output of 174 million bushels compared with the prior season's 70 million. Montana's crop was 88 million bushels, up from 18 million.

The 1989 durum crop was estimated at 92 million bushels, double the 1988 level. The durum crop is processed for pasta. The white wheat crop, grown in the Pacific Northwest, was 251 million bushels, up from 232 million in 1988.

U.S. carry-in stocks of wheat in 1989/90 were 702 million bushels, 44 percent less than the previous season. Total wheat supplies were 2.76 billion bushels, down 11 percent. Food use of wheat was projected at 750 million bushels, up 2 percent. Seed use was projected to fall 3 percent to 100 million bushels. Estimated feed use of 165 million bushels was up 20 percent. With wheat prices much higher than corn, use of wheat for feeding was expected to be limited in 1989/90.

U.S. wheat exports in 1989/90 were forecast at 1.3 billion bushels, down from 1.42 billion the previous season. Exports to the USSR were less robust. Under the U.S.-USSR grain agreement, the Soviets were obligated to purchase 4 million tonnes of wheat annually. The Soviets showed more interest in U.S. corn than in wheat in 1989/90.

Major markets for U.S. wheat were China, Egypt, Japan, South Korea, Pakistan and the Philippines. The USDA continued to use the Export Enhancement Program to promote wheat with subsidies, countering subsidized exports by the EC.

The domestic wheat carryover in 1989/90 was put at 443 million bushels, down 37 percent from the previous season, and was considered fairly low. Free stocks, or those outside of government programs, were expected to be only 168 million bushels, down from 225 million in 1988/89. Also, the CCC inventory was expected to tighten.

U.S. Government Program

The loan rate for 1990-crop wheat was \$1.95/bu., down from \$2.06 in 1989. The 1990 target price was \$4.00, down from \$4.10. The acreage reduction requirement was 5 percent, compared to 10 percent in 1989.

Futures Markets

Wheat futures and options are traded on the Chicago Board of Trade, Kansas City Board of Trade, and the Minneapolis Grain Exchange. Feed wheat futures are traded on the Winnipeg Commodity Exchange.

World Production of Wheat In Thousands of Metric Tons

Crop Year	Argentina	Australia	Canada	China	France	West Germany	India	Italy	Pakistan	Spain	Turkey	United Kingdom	USSR	United States	World Total ¹
1986-7	8,900	16,100	31,400	90,000	26,555	10,406	47,100	9,070	13,922	4,292	14,000	13,900	92,300	56,925	530,700
1987-8	8,800	12,400	26,000	85,800	(EC-12-71,400)	44,300	9,359	12,000	5,768	13,000	11,600	83,300	57,356	501,700	
1988-9 ²	8,100	14,100	16,000	86,400	(EC-12-74,800)	45,100		12,700		15,000			84,400	49,299	500,600
1989-90 ¹	10,700	12,500	24,400	91,000	(EC-12-79,400)	53,000		14,400		12,000			89,000	55,571	532,200

¹ Estimated. ² Preliminary. Source: Foreign Agricultural Service, U.S.D.A.

WHEAT

World Wheat Supply & Demand In Millions of Metric Tons/Hectares

	Area Harvested	Yield	Production	World Trade	Utilization Total	Ending Stocks	Stocks as % of Util
1983/84	228.9	2.14	489.3	102.0	474.0	145.1	30.6
1984/85	231.2	2.21	511.9	107.0	493.0	164.0	33.3
1985/86	229.6	2.18	500.1	85.0	496.2	167.9	33.8
1986/87	228.2	2.33	530.7	90.7	522.5	176.1	33.7
1987/88	219.9	2.28	501.7	104.9	531.0	146.8	27.7
1988/89 ¹	217.7	2.30	500.7	97.7	530.4	117.0	22.1
1989/90 ²	225.3	2.37	533.9	97.0	536.2	114.8	21.4

¹ Preliminary. ² Estimate. Source: Foreign Agricultural Service, U.S.D.A.

T.724a

Salient Statistics of Wheat in the United States

Crop Year	Planting Intentions 1,000 Acres	Acreage Harvested			Avg.—All Yield Per Acre In Bushels	Farm Disposition			Value of Production Ths. \$	Foreign Trade ⁵		Per Capita ¹ Consumption	
		Winter	Spring	All		Used for Seed	Fed to Livestock	Sold		Domestic Exports ²	Imports ³	Flour	Cereal
		1,000 Acres				(Million Bushels)				— Million Bushels —		— In Pounds —	
1983-4	76,419	47,584	13,806	61,390	39.4	No Longer Available			8,532,790	1,429	4.0	118	3.1
1984-5	79,213	51,513	15,415	66,928	38.8	No Longer Available			8,755,033	1,424	9.4	118	3.1
1985-6	75,575	47,953	16,781	64,734	37.5				7,374,181	915	16.3	123	3.1
1986-7	72,068	43,205	17,518	60,723	34.4				5,044,347	1,004	21.2	124	3.1
1987-8	65,834	39,347	16,613	55,960	37.7				5,415,000	1,592	16.1	128	3.1
1988-9 ⁴	65,529	39,785	13,389	53,174	34.1				6,739,000	1,425	22.7	127	3.1
1989-90 ⁴	74,285	41,401	20,680	62,081	32.9				8,065,000	1,275	21.0		

¹ Civilian only. ² Includes flour milled from imported wheat. ³ Total wheat, flour & other products. ⁴ Preliminary. ⁵ Year beginning June. Source: Economic Research Service, U.S.D.A.

T.728

Supply and Distribution of Wheat in the United States In Millions of Bushels

Crop Yr. Beginning June	Supply					Domestic Disappearance					Total Domestic Disap.	Exports ⁴	Total Disappearance
	On Farms	Stocks, June 1 Mills, Elevators ³	Total Stocks	Production	Imports ⁴	Food	Seed	Industry	Residual ⁵	Feed (On Farms Where Grown)			
1984-5	591.7	806.7	1,398.6	2,594.8	9.4	4,003	651.0	98.0	—	404.5	1,153.5	1,424.1	2,578
1985-6	582.1	843.2	1,425.2	2,425.1	16.3	3,867	674.3	93.0	—	278.9	1,046.3	915.4	1,962
1986-7	681.1	1,223.9	1,905.0	2,091.6	21.2	4,018	697.6	84.0	—	411.8	1,193.4	1,003.5	2,197
1987-8	560.0	1,260.9	1,820.9	2,107.5	16.1	3,945	726.5	85.0	—	280.0	1,091.5	1,592.1	2,684
1988-9 ¹	525.0	735.8	1,260.8	1,811.4	22.7	3,095	726.6	103.0	—	143.2	972.9	1,424.5	2,397
1989-90 ²	285.0	412.6	697.6	2,041.9	21.0	2,761	735.0	107.0	—	200.0	1,042.0	1,275.0	2,317

¹ Preliminary. ² Estimated. ³ Also warehouses and all off-farm storage not otherwise designated, including flour mills. ⁴ Imports & exports are for wheat, including flour & other products in terms of wheat. ⁵ Approximate feed use. Source: Economic Research Service, U.S.D.A.

T.737

Stocks, Production, and Exports of Wheat, by Classes In Millions of Bushels

Year Beginning June	Hard Spring			Durum ³			Hard Winter			Soft Red Winter			White		
	June 1 Stocks	Production	Exports ²	June 1 Stocks	Production	Exports ²	June 1 Stocks	Production	Exports ²	June 1 Stocks	Production	Exports ²	June 1 Stocks	Production	Exports ²
1985-6	371	460	166	100	113	53	717	1,230	395	64	368	149	173	254	152
1986-7	498	451	200	121	98	82	1,009	1,018	432	79	292	115	198	232	175
1987-8	490	431	255	95	93	62	973	1,021	905	77	348	160	185	216	210
1988-9 ¹	402	181	200	83	45	20	567	880	634	75	474	320	134	231	250
1989-90 ⁴	217	443	270	60	93	55	300	721	395	39	545	335	81	239	220

¹ Preliminary. ² Includes flour made from U.S. wheat & shipments to territories. ³ Includes "Red Durum." ⁴ Estimate. Source: Economic Research Service, U.S.D.A.

T.727

Seeded Acreage, Yield and Production of All Wheat in the United States

Year	Seeded Acreage—1,000,000 Acres				Yield Per Harvested Acre—In Bushels				Production—1,000,000 Bushels			
	Winter	Not Durum	Durum	All	Winter	Not Durum	Durum	All	Winter	Not Durum	Durum	All
1986	54.0	15.1	3.0	72.1	35.2	32.3	34.0	34.4	1,521.5	472.2	97.9	2,091.6
1987	48.8	13.7	3.3	65.8	39.8	33.7	28.2	37.7	1,565.2	449.7	92.6	2,107.5
1988 ¹	48.8	13.4	3.3	65.5	39.2	19.5	15.7	34.1	1,561.1	205.5	44.8	1,811.4
1989 ²	55.0	17.7	3.8	76.6	35.1	29.2	25.3	32.9	1,451.7	497.2	92.9	2,041.9

¹ Preliminary. ² Estimate. Source: Crop Reporting Board, U.S.D.A.

T.726

WHEAT

Production of Winter Wheat in the United States In Millions of Bushels

Year	Colorado	Idaho	Illinois	Indiana	Kansas	Michigan	Missouri	Montana	Nebraska	Ohio	Oklahoma	Oregon	Pa.	Texas	Wash.	So. Dakota
1980	107.2	51.9	75.4	53.9	420.0	35.2	89.0	54.8	108.3	67.1	195.0	72.0	9.3	130.0	143.0	20.9
1981	83.9	55.7	92.5	62.1	305.0	41.5	115.5	89.3	104.4	72.6	172.8	73.2	9.7	183.4	161.3	30.4
1982	81.5	53.0	67.5	43.3	458.5	23.0	74.8	80.6	101.5	51.6	227.7	59.4	8.2	144.0	125.4	36.3
1983	117.0	55.6	64.4	49.5	448.2	35.8	70.3	79.1	98.9	58.8	150.5	62.0	7.6	161.0	162.5	51.3
1984	110.4	56.7	70.4	48.3	431.2	45.6	84.1	67.0	81.0	48.4	190.8	66.2	8.4	150.0	148.8	61.2
1985	134.6	46.1	36.8	37.1	433.2	45.0	49.9	22.4	89.7	58.9	165.0	51.8	10.1	187.2	115.2	44.1
1986	92.8	51.9	36.1	30.1	336.6	30.6	18.8	64.0	76.0	48.3	150.8	53.9	9.7	120.0	102.9	57.6
1987	93.8	60.0	56.1	34.8	366.3	19.2	35.4	79.2	85.8	46.4	129.6	49.5	8.0	100.8	104.0	55.1
1988	75.9	50.8	67.5	35.0	323.0	26.0	77.5	39.9	72.0	46.0	172.8	46.9	9.0	89.6	108.5	21.6
1989 ¹	57.2	56.7	105.0	51.9	213.6	33.9	87.0	54.0	55.4	62.7	153.9	48.0	8.0	60.0	70.2	35.1

¹ Preliminary Source: Crop Reporting Board, U.S.D.A.

T.734

United States Official Winter Wheat Crop Production Reports In Thousands of Bushels

Crop Year	Previous December	May 1	June 1	July 1	August 1	Sept. 1	Current December	Final
1980-1	1,567,817	1,711,010	1,757,170	1,848,000	1,870,000	1,878,000	1,891,251	1,895,383
1981-2	1,977,079	2,078,137	2,013,607	2,092,692	2,064,845	2,059,205	2,098,719	2,103,538
1982-3	2,128,133	2,063,336	2,131,214	2,124,854	2,095,554	2,106,149	2,108,246	2,073,560
1983-4	Discontinued	1,893,241	1,882,916	1,937,388	1,963,243	1,976,843	1,993,888	1,988,304
1984-5		1,979,366	1,972,776	2,021,918	2,045,088	2,036,028	2,060,646	2,060,266
1985-6		1,974,228	1,892,438	1,854,254	1,842,884	1,839,284	1,827,195	1,827,615
1986-7		1,603,127	1,578,277	1,553,026	1,532,526	1,532,526	1,519,143	1,521,498
1987-8		1,549,344	1,577,489	1,574,439	2,125,097	2,114,492	1,565,176	1,565,176
1988-9		1,620,257	1,570,417	1,568,052	1,554,812	1,560,970	1,561,145	1,561,145
1989-90		1,430,148	1,407,898	1,461,924	1,466,049	1,451,746		

Source: Crop Reporting Board, U.S.D.A.

T.736

Production of All Spring Wheat in the United States In Millions of Bushels

Year	Durum Wheat							Other Spring Wheat									
	Arizona	California	Minnesota	Montana	North Dakota	South Dakota	Total Durum	Colorado	Idaho	Minnesota	Montana	North Dakota	Oregon	South Dakota	Utah	Washington	Total
1980	12.4	7.8	3.4	7.6	73.2	4.1	108.4	3.1	44.2	96.9	57.4	105.5	5.4	37.4	1.4	17.2	370.5
1981	18.3	14.7	5.4	11.0	130.8	5.8	185.9	4.0	34.1	134.0	72.5	197.4	4.2	52.8	1.4	7.0	509.3
1982	7.0	11.6	3.0	9.9	110.8	3.5	145.9	3.5	41.8	120.8	89.9	209.3	4.1	58.8	1.6	13.4	545.5
1983	5.0	6.3	1.2	4.1	54.3	2.1	73.0	5.1	36.1	75.1	53.7	135.0	3.6	36.4	1.4	10.1	358.5
1984	7.2	9.4	1.6	3.6	78.6	3.1	103.4	4.6	24.7	103.7	34.1	183.6	2.8	61.7	1.6	11.6	431.1
1985	3.9	7.4	1.7	1.4	95.5	2.6	112.5	4.8	25.9	130.4	26.4	212.0	4.2	64.5	1.6	13.1	485.0
1986	4.2	6.5	1.3	4.3	80.0	1.6	97.9	3.6	29.9	98.1	70.2	198.4	4.5	49.5	1.7	14.0	472.2
1987	3.8	5.1	1.2	5.3	74.1	3.0	92.6	3.6	25.5	98.4	66.7	189.1	3.4	48.6	1.7	10.3	449.7
1988	4.3	5.6	.8	2.1	31.2	.8	44.8	3.6	24.7	49.5	18.0	70.5	4.9	15.6	1.2	16.1	205.5
1989 ¹	7.6	8.7	1.0	6.7	66.0	2.9	92.9	4.9	37.0	96.9	88.4	174.0	4.9	45.1	1.0	43.7	497.2

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.735

Wheat Under Price Support Through the End of the Month (Cumulative Total from Current Season's Crop) In Millions of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1980-1	35.7	56.6	99.2	126.5	142.2	183.3	228.6	261.0	297.4	328.0	328.0	329.4	329.4
1981-2	84.6	164.4	254.8	296.1	314.1	344.7	392.3	411.7	427.4	443.3	444.5	445.8	
1982-3	106.7	206.5	335.2	414.0	467.2	501.1	579.1	606.1	629.4	638.6	640.9	643.4	
1983-4	196.3	335.2	357.5	462.8	494.7	520.4	571.5	595.4	619.2	627.5	629.1	630.3	
1984-5	48.8	104.9	195.5	213.4	225.6	237.7	263.5	270.2	275.7	279.7	280.1	280.8	
1985-6	269.5	414.2	567.7	679.0	714.3	740.7	786.2	803.8	813.5	825.0	827.3	828.1	
1986-7	81.7	155.7	274.6	400.5	441.6	456.0	487.9	500.7	505.6	512.6	513.5	513.4	513.4
1987-8	—	105.1	259.6	350.4	396.7	418.2	442.8	460.2	466.5	470.7	472.0	472.1	472.2
1988-9	—	60.0	85.9	91.3	94.1	99.3	103.6	104.7	105.7	106.2	106.3	106.3	106.3
1989-90	—	42.7	69.7										

Source: Economic Research Service, U.S.D.A.

T.729

WHEAT

United States Grindings of Wheat by Mills In Millions of Bushels (of 60 Pounds Each)

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1979-80	52.1	59.0	52.4	58.9	55.7	50.6	55.0	50.4	49.1	47.2	49.8	47.8	628.0
1980-81	51.8	53.0	54.8	58.4	54.6	56.9	53.9	51.1	55.3	53.4	52.2	52.6	648.0
1981-82	51.2	53.3	54.6	55.6	51.0	50.2	54.8	53.9	57.8	51.4	50.0	51.2	635.0
1982-83	53.4	57.0	55.4	57.5	54.9	55.9	55.7	53.6	60.1	54.8	59.1	57.7	675.1
1983-84	56.2	66.1	62.9	59.4	57.2	56.0	55.7	57.5	58.4	54.0	60.1	54.6	698.1
1984-85	51.8	59.2	55.2	58.7	56.6	53.4	56.7	57.4	58.8	55.3	58.1	53.9	675.1
1985-86	54.6	60.9	59.5	65.1	63.7	56.0	61.7	60.9	56.1	58.7	60.3	59.3	716.8
1986-87	61.7	67.3	67.8	71.1	67.7	65.9	61.7	61.6	63.8	63.5	67.6	66.9	786.6
1987-8 ¹	63.0	65.7	65.2	68.9	66.2	61.9	58.8	57.6	60.4	57.6	64.9	63.0	753.2
1988-9 ¹	63.0	69.2	66.0	70.0	69.7	63.8	65.0	60.8	60.4	60.7	64.7	59.6	772.9
1989-90 ¹	61.3	74.1	68.0	71.9									

¹ Preliminary. Source: Bureau of the Census

T.744

Comparative Average Cash Wheat Prices In Dollars per Bushel

Crop Year— June to May	Re- ceived by U.S. Farm- ers	No. 2 Soft Red Winter Chicago	No. 1 Hd. Red Ordin. Protein Kansas City	No. 2 Soft Red Winter St. Louis	— Minneapolis —		No. 1 Soft Port- land Oregon	No. 2 Western White Pacific N.W.	No. 2 Soft White Toledo	Export Prices (U.S. \$ per Metric Ton)				
					No. 1 Dark Northern Spring 14%	No. 1 Hard Amber Durum				Ausi- talia Std. White	Canada Vanc. No. 1 CWRS 13½%	Argen- tina F.O.B. B.A.	U.S. Gulf No. 2 H.W.	Rotter- dam C.I.F. U.S. No. 2 Hd. Winter
1982-3	3.45	3.32	3.94	3.32	4.09	4.25	4.39	3.93	3.33	160	165	166	161	187
1983-4	3.51	3.56	3.84	3.62	4.30	4.83	3.95	3.58	3.48	161	169	138	158	185
1984-5	3.39	3.51	3.74	3.57	4.06	4.44	3.82	3.44	3.42	153	166	135	153	180
1985-6	3.08	3.22	3.28	3.26	3.94	4.07	3.72	3.34	3.12	141	173	106	137	169
1986-7	2.42	2.76	2.72	2.87	3.07	3.57	2.90	2.58	2.66	120	161	88	117	148
1987-8	2.57	2.89	2.96	2.95	3.15	4.13	3.06	2.74	2.94	115	134	89	114	141
1988-9 ¹	3.72	4.00	4.17	4.08	4.36	5.53	4.53	4.14	3.83	150	177	125	146	165

¹ Preliminary. Source: Economic Research Service, U.S.D.A.

T.733

Wheat Government Loan Program Data in the United States Loan Rates (Cents Per Bushel)

Crop Year Beginning June	Total Support Rate	Na- tional Avg.	Tar- get Rate	Corn Belt (Soft Red Winter)	Central & So. Plains (Hard Winter)	No. Plains (Spr. & Dur.)	Pacific North- west (White)	Placed Under Loan	% of Pro- duction	Acqui- red By CCC Under Program	Deliv- ered To CCC	Stocks Ending May 31				
												Total Stocks	Total CCC Stocks	CCC Loans	Farmer- Owned Reserve	"Free"
1979-80	340	250	340	248	243	251	257	182.0	8.5	157	—	902.0	187.8	99.3	259.9	355.0
1980-81	363	300	363	300	294	302	308	331	14.0	—	—	989.1	199.7	54.6	359.6	375.2
1981-82	381	320	381	320	313	321	329	452	16.1	13	61.1	1,159	190.3	112.0	560.4	296.7
1982-83	405	355	405	356	347	357	365	646	23.0	148	9.3	1,515	192.0	65.2	1,060.6	197.3
1983-84	430	365	430	366	356	368	375	635	26.2	220	192.0	1,399	188.0	379.1	611.2	220.3
1984-85	438	330	438	328	323	334	343	285	10.9	244		1,425	377.6	175.0	657.1	215.5
1985-86	438	330	438	328	323	334	343	842	34.7	288		1,905	601.7	677.7	596.4	29.2
1986-87	438	240	438	236	235	244	250	514	24.5	477		1,821	830.1	235.6	631.8	123.4
1987-8 ²	438	228	438	235	282	228	239	475	22.6	165		1,261	283.0	177.5	466.8	333.5
1988-9 ³	423	221	423	233	221	221	232					697.6	190.5	19.2	287.0	200.9
1989-90 ³	410	206	410	214	204	206	217					443.5	100.0			

¹ The national average loan rate at the farm as a percentage of the parity-priced wheat at the beginning of the marketing year. ² Preliminary. ³ Estimate. Source: Agricultural Marketing Service, U.S.D.A.

Exports of Wheat (Only) from the United States In Millions of Bushels

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
1984-85	105.4	133.3	146.2	242.7	137.3	97.3	131.9	106.4	85.5	57.9	67.8	56.6	1,368.3
1985-86	84.3	63.9	86.9	72.2	85.7	82.4	61.9	69.7	70.9	67.4	56.4	46.4	847.9
1986-87	79.4	104.5	114.7	98.1	84.5	59.3	51.0	65.2	67.8	65.5	65.4	64.6	920.0
1987-8	119.8	158.6	112.8	119.9	101.7	71.2	113.4	139.9	143.3	149.1	152.8	147.7	1,530.2
1988-9 ¹	121.8	111.5	107.4	127.4	93.5	93.3	100.2	115.8	127.2	141.8	115.9	91.6	1,347.4
1989-90 ¹	90.8	138.0	132.0	150.7									

¹ Preliminary. Source: Department of Commerce

T.738

WHEAT

United States Wheat and Wheat Flour Imports and Exports In Thousands of Bushels

Year Beginning June	Wheat		Imports			Public Law 480						Exports			Total Specified Gov't. Programs
	Suitable for Milling	Unfit for Human Consumption	Flour (Wheat Equivalent)	Other Pdt's. ²	Total	Sales for Foreign Currency ³	Long-Term \$ & Conver. for Cur. Credit Sales	Gov't. to Gov't. Donations ⁴	Donations Thru Voluntary Relief Agencies	Foreign Donations Sec. 416	Mutual Security (A.I.D.) ⁵				
1981-2	59	14	357	2,423	2,853	—	110,046	14,312	8,614	—	—	—	—	—	132,972
1982-3	3,901	35	624	3,036	7,596	—	113,322	22,081	8,724	—	6,805	—	—	—	150,932
1983-4	67	11	336	3,426	3,840	—	120,670	19,114	17,117	—	—	—	—	—	156,901
1984-5	4,825	3	329	4,283	9,440	—	151,605	23,188	8,930	—	2,726	—	—	—	186,449
1985-6	9,758	71	475	4,400	14,704	—	134,159	18,865	7,101	1,849	17,124	—	—	—	179,098
1986-7	14,728	984	413	4,939	21,065	3,953	150,840	9,597	5,831	15,413	28	—	—	—	185,662

¹ Preliminary. ² Includes macaroni, semolina & similar pdt's. ³ Authorized by title, I, P.L. 480. ⁴ Author, by title II, P.L. 480. ⁵ Foreign Assist. Act of 1961. Source: Economic Research Service, U.S.D.A. T.732

Wheat Stocks in the United States In Millions of Bushels

Year	On Farms				Off Farms				Total Stocks			
	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1
1985	N.A.	582.1	N.A.	N.A.	N.A.	843.2	N.A.	N.A.	1,800.8	1,425.2	3,203.5	2,643.4
1986	N.A.	681.1	1,293.0	1,063.0	N.A.	1,223.9	1,861.6	1,610.5	2,255.8	1,905.0	3,154.6	2,673.5
1987	794.0	560.0	1,168.0	971.0	1,456.4	1,260.9	1,820.5	1,534.3	2,250.4	1,820.9	2,988.5	2,505.3
1988 ¹	748.0	525.0	798.0	614.0	1,175.5	735.8	1,455.6	1,095.9	1,923.5	1,260.8	2,253.6	1,709.9
1989 ¹	457.0	285.0	822.0		764.7	412.6	1,088.9		1,221.7	697.6	1,910.9	
1990												

¹ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.731

Commercial Stocks of Domestic Wheat¹ in the United States, at First of Month In Millions of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1983-4	285.0	403.1	462.1	477.0	442.0	385.4	334.9	294.9	273.0	255.1	236.6	212.4
1984-5	265.2	423.0	413.7	409.4	387.8	352.8	309.9	268.0	248.5	239.8	215.1	221.4
1985-6	312.5	434.8	474.8	510.9	504.2	473.9	446.3	435.7	413.0	400.3	399.0	407.2
1986-7	437.5	483.7	494.7	475.9	472.7	445.0	435.0	420.0	410.1	393.3	381.1	366.8
1987-8	417.8	436.5	443.7	451.9	439.9	421.4	387.1	361.1	302.6	261.2	235.6	203.7
1988-9	291.6	334.2	342.4	340.8	331.1	297.2	293.7	266.5				
1989-90	130.5	171.6	211.7	211.8		180.2	161.0					

¹ Domestic wheat in store in public and private elevators in 39 markets and wheat afloat in vessels or barges at lake and seaboard ports, the first Saturday of the month. Source: Department of Agriculture T.746

Open Interest of All Wheat Futures Contracts at Chicago,¹ K.C. & Mpls. In Millions of Bushels

Year	End of Month ¹						— Kansas City ³ —						Minn. ² Jan. 1		
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		Jan. 1	July 1
1984	291.5	281.3	288.9	248.4	256.7	215.3	246.6	233.0	217.9	222.5	209.9	213.3	89.0	92.8	23.7
1985	197.9	191.7	176.2	189.6	201.6	191.4	189.2	186.3	163.4	152.3	144.2	158.9	95.4	130.9	21.6
1986	167.4	162.8	164.1	183.5	167.0	190.9	178.0	165.7	191.6	165.4	143.5	115.8	63.0	101.0	23.4
1987	140.2	129.6	155.0	149.8	159.2	171.4	184.2	201.1	205.0	172.8	149.6	148.7	59.1	87.0	19.7
1988	195.1	194.4	224.2	192.0	231.0	297.1	264.1	287.7	358.2	352.9	313.1	321.9	96.3	141.9	34.3
1989	322.2	294.9	308.1	295.7	330.7	343.2	328.4	323.1	283.4	264.7	254.2	265.2	159.0	119.4	34.5
1990													144.1		45.8

¹ Chicago Board of Trade. ² Minneapolis Grain Exchange. ³ Kansas City Board of Trade. Source: Commodity Futures Trading Commission

T.748

WHEAT

Wheat Supply and Distribution in Canada, Australia and Argentina In Millions of Metric Tons

Crop Year	Canada (Yr. Beg. Aug. 1)					Australia (Yr. Beg. Oct. 1)					Argentina (Yr. Beg. Dec. 1)				
	Stocks Aug. 1	Supply New Crop	Total Supply	Disappearance Domestic	Exports ¹	Stocks Oct. 1	Supply New Crop	Total Supply	Disappearance Domestic	Exports ¹	Stocks Dec. 1	Supply New Crop	Total Supply	Disappearance Domestic	Exports ¹
1979-80	14.9	17.2	32.1	5.5	15.9	4.6	16.2	20.8	3.4	13.2	1.1	8.1	9.2	4.0	4.8
1980-1	10.7	19.3	30.0	5.2	16.3	4.3	10.9	15.2	3.5	9.6	.4	7.8	8.2	4.0	3.8
1981-2	8.6	24.8	33.4	5.2	18.4	2.0	16.4	18.4	2.6	11.0	.4	8.3	8.7	4.3	3.6
1982-3	9.7	26.7	36.4	5.1	21.4	4.8	8.9	13.7	4.1	7.3	.8	15.0	15.8	4.8	9.9
1983-4	10.0	26.5	36.5	5.5	21.8	2.3	22.0	24.3	3.4	13.3	1.1	12.8	13.9	4.7	7.8
1984-5	9.2	21.2	30.2	5.2	17.5	7.5	18.7	26.2	2.9	14.7	1.3	13.2	14.5	4.6	9.4
1985-6	7.6	24.3	31.9	5.6	17.7	8.6	16.2	24.8	2.9	16.0	.5	8.5	9.0	4.4	4.3
1986-7	8.6	31.4	40.0	6.4	20.8	5.9	16.1	22.0	2.6	15.6	.3	8.9	9.2	4.5	4.4
1987-8	12.7	26.0	38.7	7.9	23.5	3.8	12.4	16.2	3.5	9.9	.2	8.8	9.0	4.5	3.7
1988-9 ²	7.3	16.0	23.3	5.8	12.4	2.8	14.1	16.9	3.0	11.3	.8	8.1	8.9	4.6	4.0
1989-90	5.1	24.4	29.5	6.1	16.5	2.6	14.0	16.6	3.5	10.5	.3	10.5	10.8	4.6	5.9
1990-91 ³	6.8					2.6					.3				

¹ Including flour. ² Preliminary. ³ Forecast. Source: Foreign Agricultural Service, U.S.D.A.

T.725

United States Wheat Quarterly Supply and Disappearance In Millions of Bushels

Year & Begin. June 1	Supply				Disappearance					Total Disap- pearance	Ending Stocks			
	Begin- ning Stocks	Pro- duction	Im- ports ²	Total Supply	Food	Alc. Bever- ages	Seed	Feed & Residual	Total		Ex- ports ²	Gov't. Owned ⁴	Pri- vately Owned ⁵	Total Stocks
1983-4	1,515	2,420	4.0	3,939	642.6	—	100.0	369.1	1,112	1,429	2,540	188.0	1,211	1,399
June-Aug.	1,515	2,420	1.1	3,936	158.7	—	1.0	196.5	356.2	346.7	702.9	365.0	2,868	3,233
Sep.-Nov.	3,233	—	.9	3,234	163.1	—	75.0	100.5	338.6	359.7	698.3	375.8	2,160	2,536
Dec.-Feb.	2,536	—	1.0	2,537	166.8	—	3.0	46.4	216.2	369.0	585.2	313.8	1,638	1,952
Mar.-May	1,952	—	1.0	1,953	154.0	—	21.0	25.7	200.7	353.2	553.9	188.0	1,211	1,399
1984-5	1,399	2,595	9.4	4,003	651.0	—	98.0	404.5	1,154	1,424	2,578	377.6	1,048	1,425
June-Aug.	1,399	2,595	4.6	3,998	157.8	—	1.0	279.9	438.7	399.2	837.9	278.1	2,882	3,160
Sep.-Nov.	3,160	—	1.8	3,162	168.5	—	69.0	99.9	337.4	486.0	823.4	359.4	1,979	2,339
Dec.-Feb.	2,339	—	1.2	2,340	164.2	—	4.0	35.5	203.7	335.2	538.9	375.7	1,415	1,801
Mar.-May	1,801	—	1.8	1,803	160.5	—	24.0	-10.8	173.7	203.7	377.4	377.6	1,048	1,425
1985-6	1,425	2,425	16.3	3,867	674.3	—	93.0	278.9	1,046	915.4	1,962	601.7	1,303	1,905
June-Aug.	1,425	2,425	5.1	3,855	165.8	—	1.0	235.9	402.8	249.1	651.9	406.7	2,797	3,204
Sep.-Nov.	3,204	—	5.1	3,209	185.6	—	63.0	63.7	312.3	252.9	565.2	517.1	2,126	2,643
Dec.-Feb.	2,643	—	2.7	2,646	162.2	—	4.0	—	165.9	224.4	390.3	526.3	1,730	2,256
Mar.-May	2,256	—	3.5	2,259	160.8	—	25.0	-20.5	165.3	189.0	354.3	601.7	1,303	1,905
1986-7	1,905	2,092	21.2	4,018	697.6	—	84.0	411.8	1,193	1,004	2,197	830.1	990.8	1,821
June-Aug.	1,905	2,092	4.3	4,001	169.0	—	1.0	353.8	523.8	320.6	844.4	793.8	2,363	3,157
Sep.-Nov.	3,157	—	3.6	3,160	185.9	—	57.0	-19.6	223.3	263.4	486.7	863.9	1,810	2,674
Dec.-Feb.	2,674	—	5.9	2,679	168.0	—	3.0	55.3	226.3	202.7	429.0	905.3	1,345	2,250
Mar.-May	2,250	—	7.3	2,258	174.7	—	23.0	22.3	220.0	216.8	436.8	830.1	990.8	1,821
1987-8	1,821	2,108	16.1	3,945	726.5	—	85.0	280.0	1,092	1,592	2,684	283.0	977.8	1,261
June-Aug.	1,821	2,108	2.7	3,931	181.1	—	1.0	362.7	544.7	409.9	954.6	798.8	2,190	2,977
Sep.-Nov.	2,977	—	4.5	2,981	193.1	—	58.0	-79.2	171.9	308.5	480.4	755.4	1,751	2,501
Dec.-Feb.	2,501	—	3.7	2,504	170.8	—	3.0	-6.2	167.6	413.1	580.8	450.1	1,473	1,924
Mar.-May	1,924	—	5.1	1,929	181.6	—	23.0	2.7	207.3	460.6	667.8	283.0	977.8	1,261
1988-9 ¹	1,261	1,811	22.7	3,095	726.6	—	103.0	143.2	972.9	1,425	2,397	190.5	507.1	697.6
June-Aug.	1,261	1,811	8.6	3,081	181.4	—	1.0	281.6	463.9	363.4	827.3	250.0	2,004	2,254
Sep.-Nov.	2,254	—	6.3	2,260	196.4	—	67.0	-43.6	219.8	330.1	549.9	213.0	1,497	1,710
Dec.-Feb.	1,710	—	3.7	1,714	175.8	—	3.0	-50.0	128.9	363.0	491.9	203.2	1,019	1,222
Mar.-May	1,222	—	4.1	1,226	173.0	—	32.0	-44.8	160.2	368.0	528.3	190.5	507.1	697.0
1989-90 ³	697.6	2,042	21.0	2,761	735.0	—	107.0	200.0	1,042	1,275	2,317	100.0	343.5	443.5
June-Aug.	697.6	2,042	5.9	2,745	191.2	—	1.0	272.4	464.6	369.9	834.5	167.9	1,743	1,911
Sep.-Nov.	1,911	—	5.5	1,916	191.0	—	70.0	-71.4	189.6	305.1	494.7	N.A.	N.A.	1,422
Dec.-Feb.	1,422	—	4.6	1,426	172.8	—	3.0	-5.0	170.8	325.0	495.8	N.A.	N.A.	930.5
Mar.-May	930.5	—	5.0	935.5	180.0	—	33.0	4.0	217.0	275.0	492.0	100.0	343.5	443.5

¹ Preliminary. ² Imports & exports include flour and other products expressed in wheat equivalent. ³ Forecast. ⁴ Uncommitted. Gov't. only. ⁵ Includes total loans. ⁶ Less than 50,000 bushels. Source: Economics Research Service, U.S.D.A.

T.740

WHEAT



Average Price of No. 2 Soft Red Winter (30 Days) Wheat at Chicago In Dollars per Bushel

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
1979-0	4.36	4.39	4.23	4.28	4.30	4.13	4.26	4.36	4.39	4.18	3.96	4.04	4.24
1980-1	3.96	4.17	4.21	4.38	4.70	4.92	4.54	4.57	4.34	4.15	4.18	3.80	4.33
1981-2	3.60	3.70	3.70	3.87	3.97	4.08	3.86	3.77	3.57	3.59	3.70	3.43	3.74
1982-3	3.31	3.36	3.35	3.18	2.98	3.33	3.23	3.32	3.40	3.36	3.51	3.55	3.32
1983-4	3.53	3.59	3.71	3.62	3.56	3.42	3.55	3.47	3.34	3.57	3.65	3.65	3.56
1984-5	3.51	3.44	3.49	3.47	3.51	3.62	3.49	3.51	3.55	3.58	3.63	3.34	3.51
1985-6	3.27	3.09	2.87	2.83	3.04	3.33	3.46	3.34	3.37	3.40	3.39	3.25	3.22
1986-7	2.52	2.58	2.44	2.36	2.57	2.73	2.76	2.87	2.91	3.11	3.16	3.08	2.76
1987-8	2.63	2.54	2.61	2.77	2.82	2.80	3.00	3.23	3.23	2.94	3.02	3.13	2.89
1988-9	3.56	3.52	3.61	3.84	4.07	4.09	4.25	4.39	4.30	4.31	4.04	4.07	4.00
1989-90	3.87	3.92	3.94	3.93	4.07	4.07	4.13						

Source: Agricultural Marketing Service, Grain Division, U.S.D.A.

T.745

Stocks of Wheat Flour Held by Mills in the United States In Thousands of Sacks (100 Pounds)

Year	Jan. 1	April 1	July 1	Oct. 1	Year	Jan. 1	April 1	July 1	Oct. 1
1982	3,460	3,384	3,744	3,563	1986	4,847	4,740	5,141	5,101
1983	4,276	3,760	3,490	3,599	1987 ¹	5,228	5,738	5,581	5,258
1984	3,805	3,780	3,763	3,833	1988 ¹	5,858	5,719	5,205	5,640
1985 ¹	4,230	4,303	5,040	5,052	1989 ¹	4,800	4,423	5,253	5,593

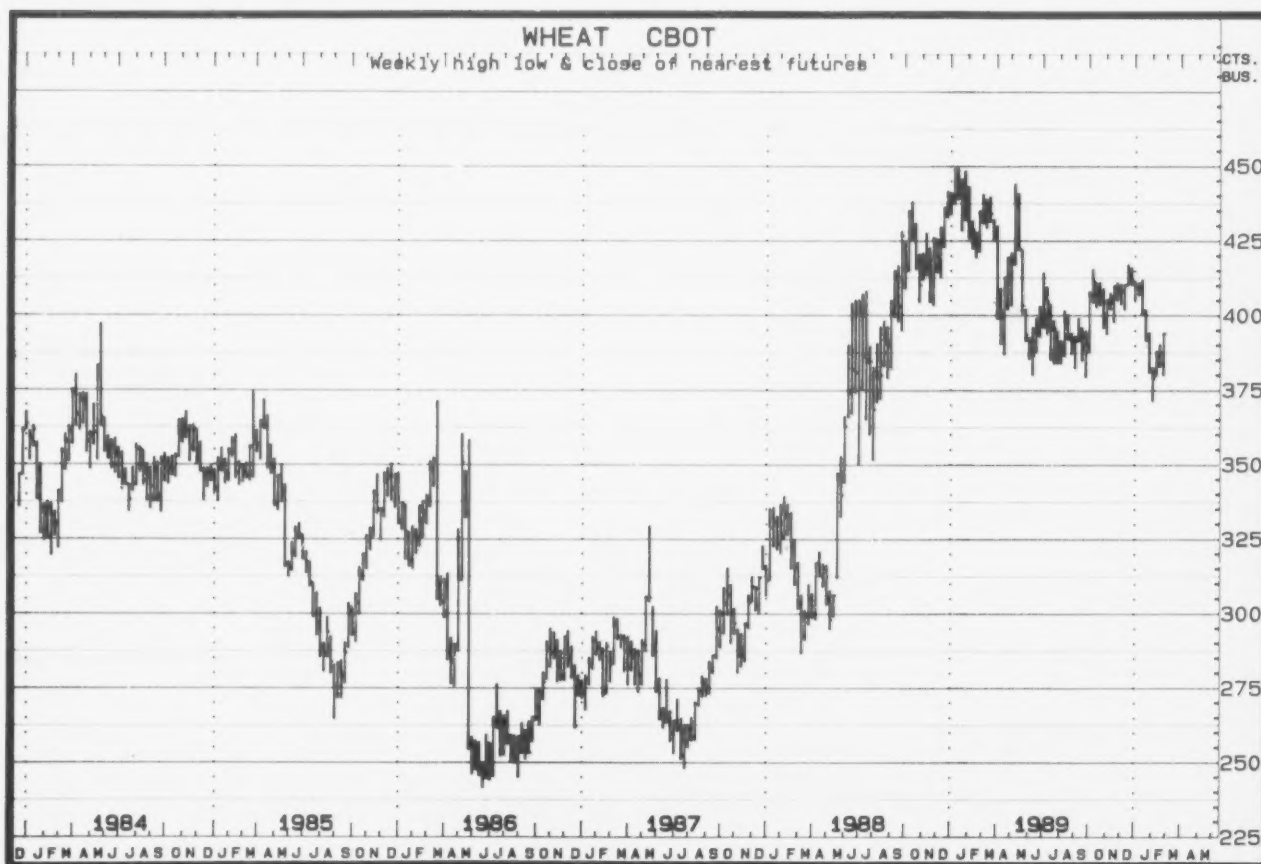
¹ Preliminary. Source: Department of Commerce

T.755

High, Low & Closing Prices of May Wheat Futures on the Chicago Board of Trade In Cents per Bushel

Year of Delivery		Year Prior to Delivery									Delivery Year					Life of Delivery Range
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	
1984	High	415	403	388	401¼	441	432	392½	376	365½	359	333¾	375	380	397	441
	Low	396	380¼	375¾	372½	397	386	364¾	347½	347	329¾	324½	330	349½	348½	324½
	Close	399	380¼	379½	398	431¼	390½	369½	355	360½	334	331¼	374	350¾	396½	—
1985	High	383½	405	392½	387	388	363	363½	362½	349¼	347¾	350	361¼	371½	349½	405
	Low	372	367¼	373½	369	355¼	350	351¼	347¼	334½	332½	333¾	335½	345	319¾	319¾
	Close	372	390½	385½	381½	357	353¾	361	349	341	343½	336¼	356½	349	320¾	—
1986	High	350	338¼	328¾	316	305	303	315	319½	326½	320½	294	312	328	360	360
	Low	335	316	314	286½	284	286½	294½	305½	308½	281	274	285¼	275½	300	274
	Close	338¼	316	314	291¾	291½	300	311½	311¼	321	288¼	286¼	304¼	328	358	—
1987	High	283	300	255¼	250	253	250½	261½	267	269½	274	282	292½	290½	329	329
	Low	244	248	239	233¼	241½	237	244	252½	258	254½	263	278	273½	287¼	233¼
	Close	283	249	239	245¼	246½	244¼	255½	267	260¾	271¼	280	284½	289	295½	—
1988	High	276½	315	288½	282	296¾	302	318	317	319¼	334½	339	324¼	320½	341½	341½
	Low	264½	276	268	263	276½	280½	293	293	304¼	308	318	295½	298	294¾	263
	Close	275	281	268	278	282½	290	304	316¼	307½	327	323½	299¼	304½	336	—
1989	High	349	370	408	420	394	413½	416	417	430½	440	436	445	421	444	445
	Low	335½	330	365	348	367	390½	396	397	398	418	417½	399	387	401	330
	Close	338½	370	398	363	391	394	403	412½	426	435	434¾	403¾	417½	403¼	—
1990	High	423	431	414	412	408½	393½	391	395¾	393½						
	Low	403½	400	398	381	384½	370	376	379	380½						
	Close	442½	403¾	405	392¼	390½	379	379¾	390	387¾						

T.750



WHEAT

Average Price of No. 1 Hard Red Winter (Ordinary Protein) Wheat, at Kansas City In Cents per Bushel

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
1983-4	392	371	388	390	384	382	385	381	371	385	393	389	384
1984-5	380	367	380	389	386	385	376	376	374	367	362	342	374
1985-6	338	317	303	307	315	335	342	332	330	336	345	340	328
1986-7	280	250	248	253	260	268	268	270	280	290	290	302	272
1987-8	270	259	265	278	290	290	310	320	328	310	314	320	296
1988-9	379	378	378	405	413	418	425	440	437	432	446	455	417
1989-90	441	428	424	418	428	436	439						

Source: Agricultural Marketing Service, U.S.D.A.

T.739

Average Price of No. 1 Dark Northern Spring Wheat at Minneapolis (14% Protein) In Cents per Bushel

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
1983-4	439	438	434	433	433	425	421	417	408	424	437	445	430
1984-5	445	434	407	397	403	402	392	390	392	394	436	402	406
1985-6	399	377	356	376	391	409	416	397	390	400	417	403	394
1986-7	317	300	286	285	298	309	304	308	313	319	317	324	307
1987-8	307	294	294	304	315	311	313	324	332	315	330	342	315
1988-9	432	423	424	432	433	422	426	444	440	456	447	455	436
1989-90	441	436	418	408	411	412	423						

Source: Agricultural Marketing Service, U.S.D.A.

T.742

Average Price¹ Received by Farmers for Wheat in the U.S. In Cents per Bushel

Year	July	June	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average ²
1983-4	350	334	361	365	360	354	348	350	340	349	363	366	351
1984-5	346	329	343	343	343	345	338	338	338	338	333	330	339
1985-6	309	293	289	301	310	322	325	319	316	328	337	301	308
1986-7	247	225	226	228	230	243	249	253	258	257	263	266	242
1987-8	244	232	236	253	262	269	270	275	279	274	279	299	257
1988-9	337	350	361	374	384	388	394	401	403	407	403	401	372
1989-90	384	378	374	372	379	376							

¹ Weighted average by sales. ² Includes an allowance for unredeemed loans at average loan values.
Source: Statistical Reporting Service, U.S.D.A.

T.743

Average Producer Price Index of Wheat Flour (Spring¹) June 1983 = 100

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
1984-5	99.5	96.9	96.9	97.3	97.7	96.8	98.2	98.7	98.3	100.3	97.0	96.3	97.8
1985-6	95.2	93.1	93.7	94.9	96.6	96.7	96.2	96.4	96.4	94.8	99.7	92.8	95.5
1986-7	87.9	87.0	85.4	86.9	86.8	86.9	87.0	89.1	89.2	89.8	93.5	90.1	88.3
1987-8	88.4	88.0	90.1	91.3	90.1	90.0	91.2	94.4	90.6	93.5	93.9	107.0	92.4
1988-9	107.0	107.7	110.0	110.5	109.0	109.1	110.7	110.0	112.4	109.5	112.0	112.7	110.1
1989-90	112.1	110.2	109.2	108.3	108.6								

¹ Standard patent. Source: Bureau of Labor Statistics (0212-0301.99)

T.758

World Wheat Flour Production In Thousands of Metric Tons

Year	Argentina	Australia ²	Rep. of Korea	France	India ³	Mexico	Israel	Japan	W. Germany	Egypt	Poland	South Africa	Turkey	Un. Kingdom	United States	Yugoslavia
1981	2,456	1,069	1,439	3,481	2,327	2,422	464	4,184	2,601	3,512	2,815	718	2,400	3,596	12,884	2,330
1982	2,550	1,086	1,444	3,454	2,404	2,484	498	4,368	2,480	3,550	2,827	726	1,499	3,504	13,049	2,442
1983	2,678	1,055	1,476	4,386	3,092	2,435	506	4,356	2,280	3,686	2,539	694	1,582	3,420	13,883	2,414
1984	2,851	1,138	1,547	4,632	3,335	2,446	516	4,439	3,500	3,707	2,645	727	1,481	3,604	13,600	2,350
1985	2,899	1,159	1,612	4,284	3,430	2,366	508	4,402	3,523	3,598	2,645	564	1,490	3,648	14,234	2,411
1986	2,856	1,178	1,596	4,922	3,720	2,126	529	4,534	3,415	3,731	2,498	520	1,518	3,700	14,801	2,323
1987 ¹	2,470	1,217	1,613	5,021	3,526	2,256	529	4,496	3,449	3,704	2,723	577	1,596	3,829	15,354	2,282
1988 ³		1,280	1,692	5,203	4,360		528	4,465	3,611		2,836	650	1,334	3,956	15,397	2,206

¹ Preliminary. ² Twelve months ending June 30 of the year stated. ³ Estimate. Source: United Nations

T.752

WHEAT

United States Wheat Flour Production In Millions of Sacks (100 Pounds Each)

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1981-2	23.3	23.7	24.2	24.7	22.8	22.3	24.5	24.0	25.8	22.9	22.3	22.9	283.4
1982-3	23.6	25.2	24.7	25.5	24.4	25.0	24.9	23.8	27.3	24.6	26.2	25.5	300.7
1983-4	25.1	29.4	27.9	26.6	25.4	24.9	24.8	25.5	25.9	24.1	26.6	24.3	310.5
1984-5	22.8	26.0	24.4	26.3	25.3	23.8	25.6	25.6	26.4	24.7	26.2	24.1	301.2
1985-6	24.3	27.3	26.8	29.1	28.4	25.2	27.8	27.5	25.6	26.5	27.2	26.7	322.4
1986-7 ¹	27.6	30.2	30.4	31.8	30.3	29.5	28.1	28.0	29.0	27.5	30.0	28.5	352.2
1987-8 ¹	27.4	29.5	29.1	31.1	29.5	27.7	26.2	25.6	26.5	25.6	28.9	28.2	335.3
1988-9 ¹	28.3	31.2	29.4	31.3	31.1	28.5	29.1	27.1	27.0	27.2	28.6	26.6	345.4
1989-90 ¹	26.6	32.3	29.7	31.8									

¹ Preliminary. Source: Bureau of the Census

T.754

United States Wheat Flour Exports In Thousands of Metric Tons²

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1983-4	3,293	3,095	3,621	3,469	1,122	395	830	883	2,842	2,802	3,213	2,457	28,022
1984-5	1,716	285	433	1,122	121	222	138	2,417	1,857	2,659	1,548	693	13,211
1985-6	850	381	132	131	1,079	2,569	1,374	2,312	2,171	2,526	888	2,089	16,502
1986-7 ¹	2,044	2,791	1,824	2,544	941	2,240	2,800	1,508	2,417	2,852	2,856	2,233	27,047
1987-8 ¹	2,633	1,902	1,528	1,081	2,777	1,779	3,057	883	273	782	831	2,941	20,467
1988-9 ²	112.9	108.2	31.3	109.4	65.6	135.7	81.7	129.3	134.9	128.5	103.4	17.8	11,587
1989-90 ¹	35.7	114.5	177.1	66.3									

¹ Preliminary. ² Data prior to 7/88 are in ths. of 100 lb. sacks. Source: Department of Commerce

T.756

Supply and Distribution of Wheat Flour in the United States In Thousands of Cwt.

Year	Wheat Ground 1,000 Bu.	Millfeed Production 1,000 Tons	Flour Production ¹	Flour & Product Imports ²	Total Supply 1,000 Cwt.	Exports Flour Products ²	Domestic Disappearance	Total Population July 1 Millions	Per Capita Disappearance Pounds
1980	628,599	4,866	282,655	904	283,559	17,378	54	227.8	117
1981	634,381	5,045	283,966	1,166	285,132	18,655	84	230.1	116
1982	653,206	5,228	290,907	1,496	292,403	20,926	154	232.5	117
1983	689,951	5,655	311,587	1,590	313,177	37,315	150	234.8	118
1984	674,665	5,426	299,832	2,005	301,837	21,752	160	237.0	118
1985	700,151	5,556	313,815	2,074	315,879	20,766	141	239.3	123
1986	737,537	5,799	326,316	2,175	328,491	30,031	123	241.6	123
1987	760,459	6,135	338,484	2,633	341,117	31,005	142	243.9	127
1988 ³	760,256	6,131	339,516	2,696	342,212	27,955	182	246.1	128

¹ Commercial production of wheat flour, whole wheat, industrial and durum flour and farina reported by Bureau of Census. ² Imports and exports of macaroni products (flour equivalent). ³ Preliminary. Source: Economics & Statistics Service, U.S.D.A.

T.753

Wheat and Flour—Price Relationships at Milling Centers (In Dollars)

Crop Year (June-May)	At Kansas City					At Minneapolis				
	Cost of Wheat to Produce 100 lb. Flour ¹	Bakery Flour Per 100 lb. ²	By-Products Obtained 100 lb. Flour ³	Total Products — Over Cost of Wheat		Cost of Wheat to Produce 100 lb. Flour ¹	Bakery Flour Per 100 lb. ²	By-Products Obtained 100 lb. Flour ³	Total Products — Over Cost of Wheat	
1980-1	10.30	10.38	1.99	12.37	2.07	10.95	11.00	1.78	12.78	1.83
1981-2	9.81	10.37	1.57	11.94	2.13	9.80	10.67	1.41	12.08	2.28
1982-3	9.46	10.22	1.52	11.74	2.28	9.45	10.54	1.26	11.80	2.35
1983-4	9.45	9.99	1.83	11.69	2.37	9.80	10.75	1.59	12.34	2.54
1984-5	8.96	9.78	1.32	11.09	2.13	9.27	10.84	1.01	11.85	2.58
1985-6	8.28	9.28	1.20	10.47	2.20	9.05	11.39	.91	12.30	3.25
1986-7	6.54	8.06	.84	8.90	2.36	6.99	9.22	.63	9.84	2.85
1987-8	7.15	7.96	1.14	9.10	1.95	7.18	9.39	.89	10.28	2.10
1988-9 ⁴	9.62	10.21	1.68	11.89	2.27	9.94	10.39	1.62	12.01	2.07
June-Aug.	9.86	11.07	1.14	12.21	2.35	9.84	10.63	1.15	11.78	1.94
Sept.	9.53	10.30	1.36	11.66	2.13	9.30	9.70	1.37	11.07	1.77
Oct.	9.64	10.25	1.72	11.97	2.32	9.37	9.65	1.60	11.25	1.88

¹ Cost of 2.28 bushels. ² Quoted as 95% patent at K.C. & standard patent at Minn., bulk basis. ³ Assumes 50-50 millfeed distribution between bran & shorts or middlings, bulk basis. ⁴ Preliminary. Source: Economic Research Service, U.S.D.A.

T.751

Wool

World sheep numbers at the beginning of 1988/89 were a record 1.15 million head, up 2 percent from a year earlier. Increases occurred in China, Australia, and the European Community. In Australia, high returns for wool and for live sheep exports in previous years encouraged expansion. Australian sheep numbers were pegged at 167 million, 7 percent above a year earlier. Government attempts to expand sheep production in China had proven successful. And in the European Community, the Common Agricultural Policy was responsible for herd expansion in Spain, Britain, and Ireland.

The total world wool clip in 1988/89 reached a record 7.12 billion pounds, greasy, up 2 percent from the previous season. Much of the increase was attributed to Australia, where wool production was 2.1 billion pounds, almost 4 percent above the previous season. Levels of wool production in China and Argentina were also higher, while output fell in New Zealand. Sheep numbers were down in New Zealand, reducing the clip.

Exports of Australian raw wool declined by an estimated 10 percent in 1988/89, as apparel sales in many countries were sluggish during the season. Japan, the USSR, and Italy were Australia's major wool customers during the year.

However, New Zealand's raw wool exports rose in 1988/89. The country is the leading source of coarse and medium-grade wools used in carpets, blankets, and heavy apparel. New Zealand's wool sales to China expanded. Other major customers were the USSR, the U.K., and Japan.

U.S. wool production in calendar 1989 was projected at 49 million pounds, above the previous year's 48 million and the highest since 1984. About 56 million pounds were in carry-in stocks on January 1. Imports were expected to total 80 million pounds, the lowest in some time, because of sluggish domestic demand. Australia, New Zealand, and the U.K. were the leading raw wool suppliers to the U.S.

Total U.S. mill use of wool in 1989 was 130 million pounds, down from 133 million in 1988 and 143 million in 1987. U.S. raw wool exports were projected at 1 million pounds. Domestic wool inventories were expected to be drawn down slightly in 1989 and were projected to be 54 million pounds at year's end.

Average U.S. farm prices for shorn wool, greasy, reached a recent peak of \$1.61/lb. in June 1988. In June 1989, the average price had fallen to \$1.39, and by August it was \$1.05.

Under the U.S. government program, which is in accordance with the National Wool Act of 1954, the support price for shorn wool was \$1.77/lb. in 1989. That compared with \$1.78 in 1988 and \$1.81 in 1987.

Futures Markets

Greasy merino wool futures are traded on the Sydney Futures Exchange, and New Zealand crossbred futures are traded in London.

World Production of Wool³ In Thousands of Metric Tons (Greasy Basis)

Year	Brazil	Argentina	Australia	China	France	Morocco	India	New Zealand	Spain	Turkey	South Africa	United Kingdom	United States	Uruguay	USSR	World ¹ Total
1980 ²	35	163	700	176	27	22	35	381	28	61	112	50	49	79	464	2,641
1981 ²	33	163	716	180	27	22	35	363	21	62	112	42	50	79	482	2,653
1982 ¹			701					370							471	
1983 ¹			672					370							474	

¹ Estimated. ² Preliminary. ³ Includes shorn, pulled, & wool exported on skins. Source: Foreign Agricultural Service, U.S.D.A.

T.760

Wool Goods¹ Production in the United States In Millions of Square Yards

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year	Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
1982	41.0	36.3	20.2	23.6	121.1	1986	37.7	38.8	27.3	30.2	134.1
1983	36.0	41.8	28.8	37.0	143.5	1987 ²	48.0	45.9	36.0	40.9	168.9
1984	48.6	44.3	29.7	36.7	159.4	1988 ²	50.6	53.0	43.0	44.7	191.2
1985	40.6	39.5	24.3	34.0	138.3	1989 ²	47.5	48.8			

¹ Woolen and worsted woven goods, except woven felts. ² Preliminary. Source: Bureau of Census

T.763

Price Received by Farmers for Shorn² Wool in the U.S. In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average ¹
1986	52.2	54.4	61.9	70.0	73.7	75.5	67.5	65.9	57.6	69.7	64.0	59.4	66.8
1987	58.7	69.1	78.7	99.7	106.0	108.0	87.0	83.1	93.6	95.5	84.1	81.4	91.7
1988	84.8	109.0	140.0	153.0	166.0	161.0	134.0	122.0	113.0	123.0	119.0	116.0	138.0
1989 ³	107.0	123.0	130.0	135.0	139.0	139.0	120.0	105.0	97.7	1.00	90.0	80.5	

¹ Weighted average. ² Grease basis. ³ Preliminary. Source: Crop Reporting Board, U.S.D.A.

T.765

Salient Statistics of Wool in the United States

Year	Sheep & Lambs Shorn ² Ths.	Weight per Fleece Lbs.	Shorn Wool Production Ths. Lbs.	Price per Lb.	Value of Production Mil. \$	-Shorn Wool- Support		Total Wool Production ⁴	Apparel Wool (Clean Content)			Carpet Wool Imports for Cons.	-Mill Consumption-	
						Pay- ment Rate	— \$ Per Lb. —		Domestic Prod.	Exports Domes- tic Wool	Imports for Consumption ⁵		Appar- el	Carpet
											Thousand Pounds			
1980	13,263	7.95	105,419	88.1	92.8	123	34.9	106,469	56,426	304	30,491	112,605	113,423	10,020
1981	13,493	8.14	109,787	94.4	103.7	135	40.5	110,937	58,806	307	48,106	132,750	127,752	10,896
1982	13,199	8.04	106,129	68.6	72.8	137	68.6	106,129	56,036	1,351	39,988	116,106	105,857	9,825
1983	12,865	8.00	102,886	61.2	63.0	153	91.7	102,886	54,324	1,014	49,371	131,369	126,729	13,851
1984	12,284	7.77	95,471	79.5	75.9	165	85.5	95,471	50,409	488	63,271	144,097	128,982	13,088
1985	11,158	7.88	87,941	63.3	55.7	165	101.7	87,941	46,433	1,415	50,164	124,490	106,051	10,562
1986	10,852	7.82	84,829	66.8	56.7	178	111.2	84,829	44,790	788	66,090	150,131	126,768	9,960
1987 ¹	11,027	7.78	85,757	91.7	78.6	181	97.4	85,757	45,280	1,037	74,054	158,774	129,677	13,092
1988 ¹	11,000	7.80	89,200	138.0	123.1			89,200	47,800	1,200	72,324	160,324	117,069	15,633
1989 ⁵	11,500	8.00	92,000					92,000	49,000	1,000			125,000	16,000

¹Preliminary. ²Includes sheep shorn at commercial feeding yards. ³Production minus exports plus imports; stocks not taken into consideration. ⁴Apparel wool includes all dutiable wool; carpet wool includes all duty-free wool. ⁵Estimate. Sources: Economics Service, U.S.D.A.; Dept. of Commerce T.766

Consumption of Apparel Wool in the United States In Millions of Pounds (Clean Basis)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	11.3	10.2	9.8	11.4	9.2	8.3	7.5	8.4	7.7	10.8	8.8	10.0	113.4
1981	10.2	11.0	12.9	10.8	10.2	12.8	8.4	10.1	11.4	9.4	9.4	11.2	127.8
1982	9.4	9.6	12.9	9.2	8.3	9.4	5.9	8.0	8.4	7.2	7.8	9.6	105.9
1983	8.5	9.3	12.4	10.2	9.4	13.0	8.5	10.0	12.3	10.7	10.7	11.8	126.7
1984	10.6	12.0	14.0	11.3	11.9	13.0	8.2	9.9	11.2	8.5	8.9	9.4	129.0
1985	9.1	8.1	9.6	8.4	9.0	10.5	6.5	8.1	10.4	8.6	8.8	8.9	106.1
1986	11.9	10.6	10.0	12.7	10.2	10.8	11.3	9.4	9.4	11.1	9.3	10.1	126.8
1987 ¹	12.4	11.7	10.0	10.9	10.6	12.7	9.0	9.4	11.7	10.9	9.6	11.2	129.7
1988 ¹	10.1	10.1	13.5	10.1	9.6	12.1	9.1	8.8	9.5	9.2	8.3	11.2	117.1
1989 ¹	10.6	11.1	13.7	10.4	8.7	11.9	9.3	9.7	10.8	9.4	9.2		

¹Preliminary. Source: Bureau of the Census

T.767

Average Wool Prices¹—Australian—64's, Type 62, Duty Paid—U.S. Mills In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	319	312	307	314	316	319	323	320	316	316	317	312	316
1982	301	303	313	323	336	321	304	294	287	276	269	267	299
1983	273	271	266	266	262	262	260	262	263	271	270	266	266
1984	268	276	279	276	271	269	255	259	247	249	255	251	263
1985	246	233	236	227	234	229	230	226	224	224	217	222	229
1986	231	229	231	238	252	242	N.A.	229	224	230	240	250	236
1987	252	259	288	325	327	335	332	373	341	348	347	356	324
1988	391	468	496	564	564	513	489	467	461	488	472	475	487
1989	511	484	454	429	414	403	405	410	414	417	417	420	432

¹Raw, clean basis. Source: U.S. Dept. of Agriculture

T.768

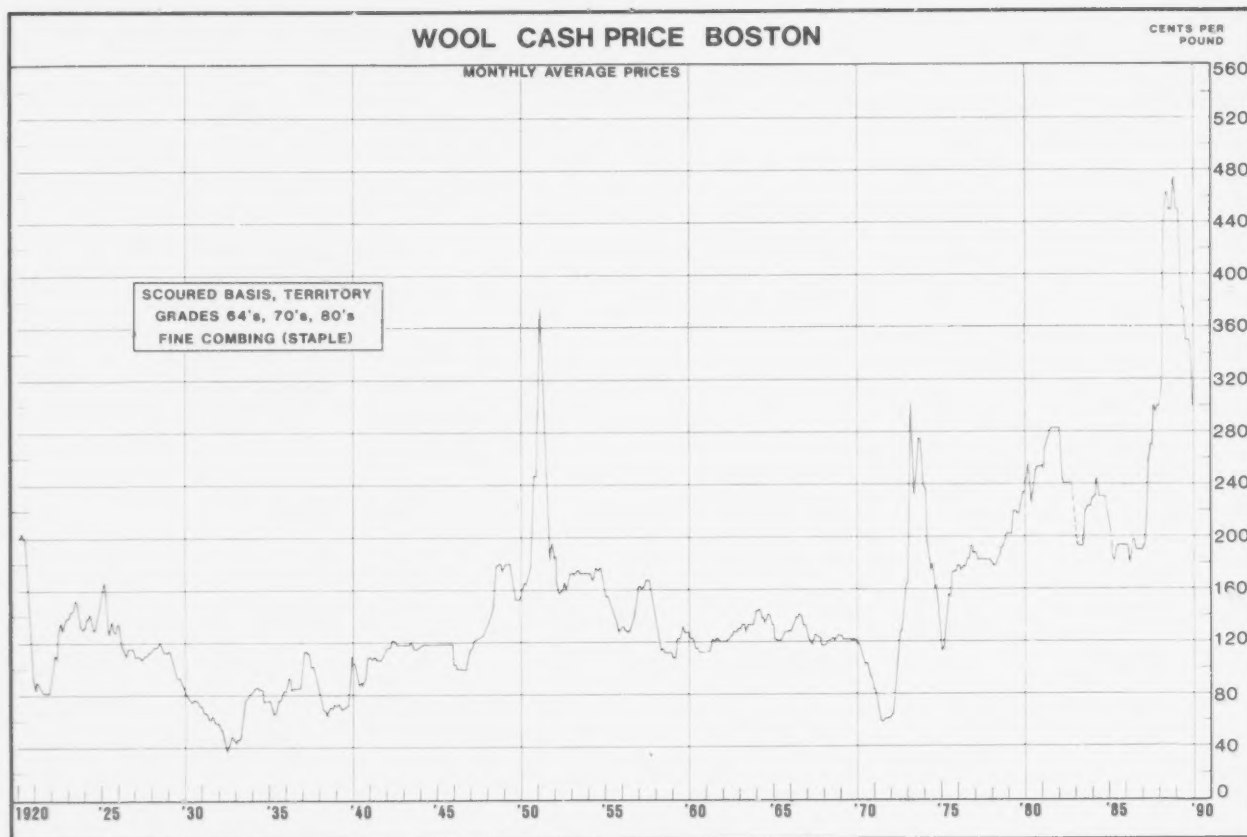
Average Wool Prices—Domestic¹—Graded Territory, 64's, Staple 2¾" & Up—U.S. Mills c/Lb.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	253	268	274	278	278	283	283	283	283	283	283	283	278
1982	275	263	244	240	240	240	240	240	240	—	—	—	247
1983	—	—	193	193	193	198	219	223	225	225	225	228	212
1984	230	230	230	245	234	230	230	230	230	221	218	214	228
1985	205	195	185	182	191	193	193	193	193	193	193	193	192
1986	193	189	180	188	198	198	193	190	190	190	190	190	191
1987	193	202	216	260	270	270	270	300	295	300	300	300	265
1988	315	397	435	453	463	460	450	450	450	463	475	450	438
1989	450	438	410	375	375	365	350	350	350	350	333	300	371

¹Raw, shorn, clean basis. Source: U.S. Dept. of Agriculture

T.769

WOOL



Wool: Mill Consumption, by Grades in the U.S., Scoured Basis In Millions of Pounds

Year	Woolen System			Apparel Wool ¹			All Total	Carpet Wool ²
	60's & Finer	50's Up to 60's	Total	60's & Finer	Worsted System Coarser Than 60's	Total		
1982	23.8	24.6	48.4	36.2	21.3	57.5	105.9	9.8
1983	30.5	30.2	60.7	42.4	23.6	66.0	126.7	13.9
1984	32.9	32.2	65.2	39.7	24.1	63.8	129.0	13.1
1985	28.0	27.7	55.7	33.6	16.7	50.3	106.1	10.6
1986	34.1	32.2	66.3	41.7	18.8	60.5	126.8	10.0
1987	32.4	28.6	61.0	53.8	14.8	68.7	129.7	13.1
1988 ³	23.8	20.9	44.6	54.6	17.9	72.4	117.1	15.6

¹ Domestic & duty-paid foreign. ² Duty-free foreign. ³ Preliminary. ⁴ Estimate. Source: Economic Research Service, U.S.D.A.

T.762

United States Imports¹ of Unmanufactured Wool (Clean Yield) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	8.0	6.3	6.6	4.9	6.0	6.6	4.0	4.2	4.7	2.9	3.6	3.7	61.4
1983	6.0	6.2	5.0	6.7	4.9	7.5	6.5	5.8	5.1	8.5	8.0	8.9	78.1
1984	11.2	9.0	7.8	7.8	10.4	6.7	9.6	6.4	6.0	6.9	5.6	6.8	94.2
1985	10.7	5.8	6.0	5.7	7.1	4.9	7.3	4.5	6.9	7.1	5.5	8.0	79.5
1986	10.2	8.8	7.6	7.5	8.0	8.6	7.8	6.3	7.0	5.0	9.2	10.8	97.0
1987 ²	8.6	8.2	9.5	8.7	13.4	8.9	8.6	8.4	6.7	7.0	8.2	9.0	105.1
1988 ²	12.0	12.7	8.8	9.1	8.6	7.4	7.7	5.0	3.3	6.7	8.6	6.7	96.7
1989 ²	8.7	11.3	9.0	13.1	10.3	8.3	10.0	6.9	3.9	10.4	5.1		

¹ Data are imports for consumption. ² Preliminary. Source: Department of Commerce

T.764

Zinc

Short zinc supplies, coupled with strong worldwide demand, pushed prices for high-grade material to record levels in 1989. Industry analysts reported that domestic producers would need to squeeze every last pound out of their plants to meet demand for zinc for die-casting and brass applications.

According to the WEFA Group in Pennsylvania, the global zinc market was likely to show a deficit of 31,000 tonnes in 1989. This shortage accounted for zinc's sharp price increase from 70 cents a pound at the end of 1988 to more than 90 cents in the spring of 1989.

While there was a late-1989 decline (the U.S. producers' quote for High Grade metal fell to 77 cents a pound at year-end, due to increased LME stocks), zinc prices were expected to recover, as demand remained strong.

Global zinc consumption was likely to expand by 2 percent in 1989, largely because of increased demand in Latin America and Asia. Though production was affected by industrial disputes and operating difficulties, mine output was forecast to rise by about one percent to 7.04 million tonnes.

According to the International Lead and Zinc Study Group (ILZSG), mine production was likely to rise substantially in 1990, with most of the increase coming from the U.S. In 1989, domestic zinc mine production totaled 315,000 tonnes, the highest since 1980. The U.S. Bureau of Mines forecast that domestic mine production might almost double in 1990, owing to anticipated production at the huge Red Dog zinc-lead mine in Alaska (which started up in late 1989).

U.S. smelter production rose in 1989, because of almost full-capacity operations at primary smelters and higher production from secondary materials. In-

creased capacity at a smelter in Pennsylvania was expected to boost output in 1990.

For the first six months of 1989, total U.S. consumption of zinc in all forms was 549,300 tonnes, compared with 1,089 million in full-year 1988. Slab zinc accounted for the bulk, with consumption for the first half of 1989 totaling 340,307 tonnes, versus 832,425 in full-year 1988.

Domestic slab zinc production for the first six months of 1989 was 180,367 tonnes, versus 329,786 in full-1988. The Bureau of Mines estimated that full-year slab zinc production would total 360,000 tonnes, about a 9 percent gain on a yearly basis. The Bureau forecast 1990 slab zinc production at 375,000 tonnes, with increases coming from zinc recovered from steelmaking electric-arc furnace dust.

For the first eight months of 1989, U.S. imports of zinc ore and concentrates were running in line with full-year 1988 totals. Imports of concentrates and ore were 255,270 tonnes in the first eight months, compared to 405,707 in all of 1988. The U.S. imports material mainly from Canada, Mexico, and Peru.

Total U.S. imports of zinc blocks, pigs, or slabs in 1988 were 740,360 tonnes from 25 nations. In the the first eight months of 1989, total imports were 483,360 tonnes. The leading supplier was Canada, which provided 424,391 tonnes in 1988 and 300,000 in the first eight months of 1989. Mexico was second with 60,947 tonnes in 1988 and 44,000 in Jan.-Aug. 1989.

Futures Market

Zinc futures are traded on the London Metal Exchange (LME).

Salient Statistics of Zinc in the United States In Thousands of Metric Tons

Year	Net Import Reliance as a % of Apparent Consumption	Production of Slab Zinc							Slab Zinc				Consumption						
		Primary			Value Mil. \$ ⁶	Redis- tilled Sec- ondary	Total Production	Pro- ducer Plants	Dec. 31 Stocks at			Zinc Slab	Ores ²	Base Scrap ²					
		Do- mestic	For- eign	Total					Con- sumer Plants	Gov't. Stock- pile	Total All Stocks			Zinc ³	Copper	Alumi- num ⁴	Total		
1985	70	198.0	63.2	261.2	202	72.6	333.8	32.4	60.3	340.6	119.9	961.0	42.3	140.6	147.2	.6	1,280		
1986	73	191.1	62.3	253.4	170	62.9	316.3	19.9	54.2	340.6	100.7	999.0	21.9	141.8	131.4	.5	1,296		
1987 ¹	71	211.6	58.4	261.0	201	83.0	342.7	16.6	57.1	340.6	96.1	1,052.0	2.5	157.8	145.2	.5	1,364		
1988 ⁵	69			244.3		89.0	340.0	6.4	64.8	340.6	85.5	832.4	2.4	97.3	156.0	.7	1,089		
1989 ⁵	61			278.3		110.0		11.8	42.7		76.7	662.6	2.4	96.0	156.0	.7	1,070		

¹Preliminary. ²Recoverable zinc content. ³Excludes redistilled slab & zinc produced by remelting. ⁴Aluminum & magnesium-base scrap. ⁵Estimate. ⁶Domestic ores (recoverable content). Source: Bureau of Mines T.770

Average Price of Zinc, Prime Western Slab (Delivered U.S. Basis) In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1986	35.38	35.38	35.38	33.86	35.00	39.85	42.02	44.38	45.53	48.09	48.72	44.92	40.79
1987	43.33	41.38	41.38	41.38	44.15	46.92	48.00	48.00	44.87	43.38	44.10	45.38	44.36
1988	45.90	46.93	49.36	54.14	57.74	65.08	68.38	68.38	69.88	71.07	72.54	75.37	62.07
1989	81.58	89.01	95.38	87.76	85.38	81.06	80.38	83.26	81.88	80.31	76.57	73.38	83.00
1990	71.33	66.47											

Source: American Metal Market

T.778

ZINC

World Smelter Production of Zinc In Thousands of Metric Tons

Year	Australia	Belgium	Canada	France	W. Germany	Italy	Japan	Mexico	Norway	Peru	Poland	Spain	USSR	United Kingdom ³	United States	World Total
1980	306.0	247.6	591.6	252.8	370.6	206.4	735.2	143.9	79.4	63.8	217.0	151.7	895.0	86.7	369.9	6,049
1981	300.4	234.7	618.6	257.1	366.6	180.9	670.2	126.5	80.3	126.2	167.1	179.5	905.0	81.6	396.8	6,081
1982	295.9	240.9	511.9	243.8	335.0	158.6	662.4	127.0	72.0	160.2	165.4	181.8	940.0	79.3	302.5	5,894
1983	303.0	275.8	617.0	249.5	356.5	155.9	701.3	175.7	90.7	154.0	170.3	189.9	965.0	87.7	305.1	6,249
1984	306.4	285.3	683.2	258.5	356.4	169.7	754.5	167.0	94.2	148.4	176.0	207.4	995.0	85.6	331.2	6,527
1985	293.2	289.6	692.4	285.6	367.8	215.6	739.6	175.4	92.7	169.7	180.0	213.3	1,000	74.3	333.8	6,852
1986 ¹	310.2	285.0	571.0	287.5	370.9	229.4	708.0	173.7	90.4	155.9	179.0	202.0	1,005	85.9	316.3	6,761
1987 ²	314.7	284.5	610.5	266.0	377.6	256.0	665.6	180.0	116.5	145.1	177.0	213.0	1,015	81.0	342.7	7,030

¹Preliminary. ²Estimated. ³Some secondary metal included. Source: Bureau of Mines

T.771

Consumption of Slab Zinc in the United States, by Industries and Grades In Thousands of Metric Tons

Year	Total	By Industries							By Grades					
		Gal- vanizers	Brass Products	Zinc- Base Alloy ²	Rolled Zinc	Zinc Oxide	Light- Metal Alloys	Other	Special High Grade	High Grade	Contin. ⁵ Galvan. Grade	Contrd. ⁴ Lead Grade	Prime Western	Remelt
1984	848.9	375.6	125.6	232.6	56.9	37.0	14.9	6.2	449.1	100.3	53.9	55.4	184.5	5.6
1985	770.7	362.4	77.9	218.4	48.0	44.4	15.2	4.3	420.6	87.4	37.1	39.3	174.8	5.5
1986	706.0	366.0	73.7	175.1	28.6	40.1	13.0	9.6	353.4	89.1	35.0	37.3	182.0	9.0
1987 ³	788.7	382.0	84.4	178.7	35.4	61.4	14.8	9.0	415.3	100.0	53.8	39.3	171.7	8.6
1988 ¹	1,089	403.0	146.0	254.0		65.9								
1989 ¹	1,070	425.4	133.7	235.3										

¹Estimated. ²Die casters. ³Preliminary. ⁴Controlled. ⁵Continuous. Source: Bureau of Mines

T.773

Zinc Foreign Trade of the United States In Metric Tons

Year	Ores ¹	Imported for Consumption						Blocks, Pigs, Anodes, etc.		Zinc Ore & Manufactures Exported					Zinc Ore & Concentrates
		Blocks, Pigs, Slabs	Zinc Fume	Waste & Scrap	Dross, & Skimmings	Dust, Powder & Flakes	Total Value Thous. \$	Unwrought	Unwrought Alloys	Sheets, Plates & Strips	Angles, Bars, Rods, etc.	Waste & Scrap	Dust (Blue Powder)		
1984	86,172	639,228	314	6,259	5,027	7,572	683,211	760	588	975	840	39,146	2,933	30,579	
1985	90,186	610,900	—	3,247	4,942	8,681	559,434	1,011	1,243	776	1,434	43,947	2,037	23,264	
1986	75,786	665,126	11	4,521	6,087	7,446	522,473	1,938	1,610	721	1,531	68,660	1,551	3,269	
1987 ²	46,464	705,985	16	4,025	6,711	7,001	608,256	1,082	5,825	1,732	1,271	88,277	1,927	16,921	
1988 ³	62,966	749,133		5,727	6,346	7,652		800				103,732		33,590	
1989 ³	36,000	710,000		9,250	9,100	7,500						106,000		72,000	

¹Zinc content. ²Preliminary. ³Estimate. Source: Bureau of Mines

T.774

U.S. Mine Production of Recoverable Zinc In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	23.0	24.8	26.6	21.6	23.3	19.7	20.5	16.8	14.9	21.3	21.2	19.0	252.8
1985	20.5	22.7	24.5	18.6	19.7	19.4	14.4	14.8	15.5	19.9	17.0	19.6	226.5
1986	20.4	18.4	19.6	15.3	12.2	14.2	16.6	15.4	16.6	19.4	15.2	17.7	203.0
1987 ¹	17.2	18.2	17.9	17.7	17.5	17.8	17.5	18.8	18.2	18.2	15.8	18.1	216.3
1988 ¹	16.8	18.2	22.3	21.9	22.0	22.4	18.8	21.5	19.9	19.9	19.9	19.3	244.3
1989 ¹	22.2	20.8	22.9	22.4	23.4	24.3	20.8	25.3	23.1				

¹Preliminary. Source: Bureau of Mines

T.774A

U.S. Consumption of Slab Zinc by Fabricators In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	69.4	70.2	76.8	72.1	73.1	71.1	62.8	67.6	65.1	69.2	64.9	62.4	848.9
1985	65.3	64.4	62.8	61.0	66.0	59.0	52.6	55.9	56.8	58.9	55.8	52.1	711.8
1986	55.4	56.3	59.9	56.2	57.8	59.1	51.4	54.8	58.6	58.2	52.5	52.8	706.0
1987 ¹	55.7	55.1	63.9	59.1	59.0	60.6	55.6	61.4	59.1	60.1	59.0	84.4	1,052.0
1988 ¹	79.5	76.4	110.3	97.9	110.7	84.6	73.9	111.8	86.9	97.5	87.2	88.1	1,089.0
1989 ¹	90.0	81.4	96.0	81.6	97.0	82.1	76.1	101.2	95.0				

¹Preliminary. Source: Bureau of Mines

T.774B

(continued from front flap)

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